Documents

From

Department Of Energy

Department of Energy
Washington, DC 20585

QA: NA

March 29, 2005

The Honorable Jon Porter
Chairman
Subcommittee on the Federal Workforce
and Agency Organization
Committee on Government Reform
U.S. House of Representatives
Washington DC 20515-6115

Dear Mr. Chairman:

This is in response to your March 23, 2005, letter to Secretary Bodman requesting information regarding possible falsification of documentation by the employees of the United States Geological Survey at the Yucca Mountain project.

Some documents being supplied to you today contain information that is subject to the attorney-client and attorney work product privileges, as well as documents that contain personal privacy information, and many which, if disclosed, could harm administrative and criminal investigations. The enclosed documents being disclosed today are not redacted. They also contain information about individuals and organizations that are not involved in the ongoing investigation and have not been implicated in any alleged wrongdoing. The Department of Energy's (DOE) disclosure of these documents does not constitute a wavier of any applicable privilege or any exemption under the Freedom of Information Act (FOIA) that DOE may claim in response to FOIA requests for these documents. DOE's disclosure of these documents also does not constitute a waiver of any applicable legal privileges or protection that DOE or any other party may claim in litigation or other proceedings. DOE, therefore, requests that you preserve the confidentiality of the documents provided to you today by refraining from providing copies of them or from otherwise communicating their content to persons other than those with a need to know as part of your congressional oversight and investigatory review.

DOE is continuing to search for and review other documents and records that may be responsive to your letter, and we will provide them at a future date. If you have additional questions, please contact me at 202-586-5450.

Sincerely,

Jill Sigal
Acting Assistant Secretary
Congressional and Intergovernmental Affairs

Enclosures

cc w/o enclosures:
The Honorable Danny Davis
Ranking Minority Member

Sender	Receiver	Subject	Copied	Date
[redacted]	[redacted] (USGS) [redacted] (LBL) [redacted] (LBL)	UZ Flow (+climate+infiltration) section 4 TSPA-VA document	[redacted] (TRW) [redacted] (SNL) [redacted] (TRW) [redacted] (TRW) [redacted] (SNL) [redacted] (SNL) [redacted] (SNL) [redacted] (SNL	05/11/98
[redacted]	[redacted]	UZ Flow (+climate+infiltration) section 4 TSPA-VA document		05/11/98
[redacted]	[redacted]	RE:		06/18/98
[redacted]	[redacted]	Jury Summons	[redacted]	10/27/98
[redacted]	[redacted]	RE: Jury Summons		10/27/98
[redacted]	[redacted]	RE: Jury Summons		10/27/98
[redacted]	[redacted]	Design Features 23/24 – period of effectiveness	[redacted]	10/28/98
[redacted]	[redacted]	Re: Design Features 23/24 – period of effectiveness	[redacted]	10/28/98
[redacted]	[redacted] (USGS)	Re: Design Features 23/24 – period of effectiveness		10/29/98
[redacted]	[redacted]	Re: Design Features 23/24 – period of effectiveness		10/29/98

[redacted]	[redacted]	Re: Design Features 23/24 – period of effectiveness	[redacted]	10/29/00
[redacted]	[redacted]	Re: Discussion w Stu Stothoff	[redacted]	11/18/98
[redacted]	[redacted]	Re: Funding Woes	[redacted]	11/18/98
[redacted]	[redacted]	Re: Funding Woes	[redacted]	11/19/98
[redacted]	[redacted]	Re: QA'd models	[redacted] GS)	11/19/98
[redacted]	[redacted]	FW: QA'd models	[redacted] (SNL) [redacted] (SNL) [redacted] (TRW) [redacted] (USGS) [redacted] (TRW) [redacted] (LBL) [redacted] LBL) [redacted] [redacted] (LBL) [redacted] (USGS) [redacted]	11/20/98
[redacted]	[redacted]	Beaten to death	[redacted]	11/21/98
[redacted]	[redacted]	Re: AP [redacted] Q	[redacted]	12/17/98
[redacted]	[redacted]	Re: AP [redacted] Q		12/17/98
[redacted]	[redacted]	Re: AP [redacted] Q	[redacted]	12/17/98
[redacted]	[redacted]	Re: AP [redacted] Q		12/17/98
[redacted]	[redacted]	Re: AP [redacted] Q		12/17/98
[redacted]	[redacted]	Re: AP [redacted] Q		12/18/98

[redacted] (USGS)	[redacted]	[redacted]	[redacted]	03/15/99
[redacted]	[redacted] (USGS)	[redacted]	[redacted]	03/15/98
[redacted] (TRW or LLNL)	[redacted]	Status of LABS phase I calc. report - USGS	[redacted] (USGS contractor) [redacted]	03/26/99
[redacted]	[redacted]	Status of LABS phase 1 calc. report - USGS	[redacted]	03/26/99
[redacted]	[redacted]	QA	[redacted]	04/22/99
[redacted]	[redacted]	Re: QA	[redacted]	04/22/99
[redacted]	[redacted]	Re: QA	[redacted]	04/22/99
[redacted]	[redacted] (USGS)	Status of New Climate Net-Infiltration Modeling	[redacted]	04/22/99
[redacted]	[redacted]	Re: SN-[redacted]	[redacted]	08/05/99
[redacted]	[redacted]	Re: SN-[redacted]	[redacted]	08/05/99
[redacted]	[redacted]	Thanks for the Cool Refs	[redacted]	11/15/99
[redacted] (QATSS)	[redacted]	AMR [redacted]	[redacted] (QATSS) [redacted] (TRW) [redacted] (QATSS?) [redacted] (MTS) [redacted] (MTS) [redacted] (QATSS) [redacted]	01/05/00
[redacted]	[redacted]	AMR [redacted]	[redacted]	01/05/00
[redacted]	[redacted]	AMR [redacted]	[redacted]	01/06/00

[redacted]	[redacted]	AMR [redacted]		01/06/00
[redacted]	[redacted]	Re: AMR [redacted]		01/06/00
[redacted]	[redacted]	Finallly the dam[redacted] coordinates	[redacted]	02/17/00
[redacted]	[redacted]E)	Re: USGS AMRs	[redacted]	03/06/00
[redacted]	[redacted]SGS)	Re: USGS AMRs	[redacted] (TRW)	03/06/00
[redacted]	[redacted]	Re: USGS AMRs	[redacted]	03/06/00
[redacted]	[redacted]	Re: USGS AMRs	[redacted]	03/06/00

[redacted]	[redacted]	Re: USGS AMRs	[redacted]	03/06/00
[redacted]	[redacted]	Re: USGS AMRs	[redacted]	03/06/00
[redacted]	[redacted]	Re: USGS AMRs	[redacted]	03/06/00
[redacted]	[redacted]	Re: USGS AMRs	[redacted] (USGS)	03/06/00
[redacted]	[redacted]	Developed daily precip record		03/07/00
[redacted]	[redacted]	[redacted]	[redacted]	03/09/00
[redacted] (TRW)	[redacted] (USGS)	Installations	[redacted] (TRW)	03/29/00

[redacted]	[redacted]	Installations	[redacted]	03/30/00
[redacted]	[redacted]	Installations	[redacted]	03/30/00

[redacted]

From: [redacted]
PostedDate: 10/15/1999 11:14:47 AM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Meeting Notes from September 16, 1999 TSPA Meeting (FEIS, LA and SR implications)
Body:

[redacted] The climate thing, now in regard to SR and LA, is again a topic of concern. As you can see, [redacted] has asked me to advise. I forwarded this information to [redacted] last week and we discussed it by telephone. A summary of that discussion, along with an e-mail attachment on the subject sent to you, [redacted] last December by [redacted] was sent to [redacted] by me. I am also forwarding that e-mail transmission.

In view of the fact that the USGS-recommended expert panel has not been convened, [redacted] wants help in determining the best course of action to get a climate story and model for [redacted] and [redacted] that "USGS won't piss on." He also wants to know who, if anyone, is in charge of this. Any ideas you may have to preclude escalation of this matter would be appreciated. I understand that about 30 seconds were spent on this topic at [redacted] last week, concerning a new three-stage climate scenario for the 10k-year period provided by [redacted]. I'm at [redacted] today.
---------- [redacted]

[redacted]
10/04/99 05:18 PM
[redacted]
cc:
Subject: Re: Meeting Notes from September 16, 1999 TSPA Meeting ([redacted], [redacted] and [redacted] implications)

[redacted]
---------- [redacted]

[redacted]
09/28/99 09:21 PM
To: [redacted]
cc: [redacted]

[redacted]

Thanks for the enlightenment, [redacted]. I was definitely under the wrong impression on the work being done for SR and also regarding the nature of the P and T trends with a climate change.

Looking back over my emails i see that I misstated what was a discussion of changes relative to previous assumptions, NOT true out of that specific context. In fact, out of that context the opposite was true. The non-traceable and non-transparent statement after it was disconnected from its

[redacted]

parent context and became flat-out wrong.

Now the real question is: is the climate [redacted] going to meet the need for the [redacted] and the [redacted] to have long term climate states (and infiltration changes accompanying those states) that are defensible???

I think showing it doesn't matter from a [redacted]-dose perspective is not sufficient to establish whether or not this part of the analysis is credible and has a defensible basis. We would all agree that showing that it has no impact on system performance does lower the burden of proof necessary to support the modeling (the confidence-burden), however.

Finally, the agreement to show only 10,000 year calculations in [redacted] and [redacted] is not an agreement that DOE was aware of at the upper levels of management, and is being revisited. We will likely need to show calculations, up to peak dose if necessary, in all 3 documents, if they clarify the content of the 10,000 year calculation. This is a dialogue that needs to be had internally, but my announcing to the NRC that we would do 10,000 years only led to a very negative reaction and caused a negative counterreaction in DOE management. NRC said whatever parts of the [redacted] they need to consult to understand the 10K year calculation will need to be Q, and the reaction of DOE management on the scene was -- OK, let's put all of that in the [redacted] and [redacted] rather than make the FEIS a Q document!

[redacted] 09/25/99 12:22:06 PM

To: [redacted]
cc: [redacted]

Subject: Re: Meeting Notes from September 16, 1999 [redacted] Meeting

[redacted] I have been out of town till today. [redacted] and I are definitely not working on a superpluvial model and I have no idea what you are talking about below in terms of incorportating a superpluvial into existing models. And some how or another doing a tweak on [redacted] won't work. Recall in [redacted] the [redacted] model couldn't address the effects of temperature, so I pushed up the estimate of MAP (in conversation with [redacted]) to try and compensate for the absence of an evaporation (temperature) term. The fact that we wrote the [redacted] document on a newspaper deadline and did not include the rationale for our MAP caused the survey reviewers to flag the MAP estimate as way too high. So trying to now in the midst of an AMR overdue deadline to figure out how to either run a real estimate of MAP with a model that can deal with MAT or alternatively trying to guesstamate effective moisture and compensate for a no MAT term is not possible (or at least should be given more thought time than is available). Further the recent Ku et al paper in Quaternary Research suggests the lake in [redacted] was at least 175 meters deep for the better part, about 35k, of the core stage 6 i.e. the superpluvial and penultimate glaciation. Other data indicate alot of the water in the superpluvial lake came from the Amargosa or perhaps the [redacted] drainages. This large and persistent lake likely owes alot of its existence to a very low MAT (at least 10 C and perhaps more colder than today) but must have also been due to higher MAP. In that a much smaller lake existed in [redacted] during the last glaciation and we believe climate for the last glaciation was about 7 C colder than today with an average MAP range of about 280 to 320 mm (USGS open-file 99-338, http://[redacted]/pub/open-file-reports/ofr-99-0338/) then the superpluvial should have a yet higher real (ie not adjusted) MAP. How much higher and how much colder and how much more persistent would require time to think about such things. And if we still can not properly deal with temperature then the compensating MAP value would likely be a very high and model distorting number that no one would be happy with. [redacted]

[redacted] wrote:

> I would like to make three comments:
>
> 1. This is the first I have heard of any plans to produce a new superpluvial
> climate description. [redacted] are you really working on that?

[redacted]

>
> 2. I don't think it's true that using a superpluvial climate is unarguably conservative. What we have seen is that climate changes are what produce dose peaks (take a look at Figure 5-2 in [redacted] Vol. 3). Having a steady superpluvial climate may not be as bad as switching between dry and superpluvial climates, for example.
>
> 3. However, I agree with [redacted] comment below that it isn't a big deal, for several reasons: (a) A calculation run after the [redacted] with everything the same except for no superpluvials produced a peak-dose CCDF only a factor of 2 or 3 lower than the [redacted] base case, which is a small effect compared to a lot of other things. [redacted] would want me to add a disclaimer here that the [redacted] calculations may have underestimated the effect of the superpluvials.) (b) We expect less sensitivity to seepage/infiltration/climate in [redacted] because of changes being made in the design and in the WPD model (early information indicates that the [redacted] and [redacted] corrosion models will not depend on the presence or absence of seepage). (c) The averaging over climate-change times that occurs when calculating the "expected annual dose" will further damp any spikes associated with climate changes (compare the size of the spikes in the "mean" curve in Figure 4-28 as compared to the spikes in individual realizations in Figure 4-27).
>
> I think that we should either simply extend the glacial-transition climate out to longer times or include climate changes similar to the [redacted]. The main problem with the latter is that we have focused [redacted] development on 10,000 years and do not have updated, or even Q, information on the climates and durations beyond that (unless [redacted] tell me I'm wrong about #1 above). This is an example of cutting scope to what we considered the minimal necessary work!
>
> [redacted]
>
> -----Original Message-----
> From: [redacted]
> Sent: Monday, September 20, 1999 6:09 PM
> To: [redacted]
> Cc: [redacted]
> Subject: Re: Meeting Notes from September 16, 1999 [redacted] Meeting
>
> You should be involved/aware of this discussion.
> [redacted]
> ---------- Forwarded by [redacted] on 09/20/99 05:16
> [redacted]
> ---------- 09/20/99 05:14 PM
>
> To: [redacted]
> cc: [redacted]
>
> Subject: Re: Meeting Notes from September 16, 1999 [redacted] Meeting (Document link
> not converted) >
> I tend to agree with [redacted] that this is not a big issue, we need to pick an approach and agree on it.
>
> I understand that we have a USGS adjustment coming this year for the [redacted] and [redacted] (mean annual precip and temp). According to an informal preview of that new superpluvial from [redacted], the [redacted] goes up from what it was, but so does the [redacted], allowing for a downward adjustment in mean annual infiltration. [redacted] can correct my impression if it is off base.

[redacted]

> It seems to me that beyond 10K years we could use either (1) the updated
> SR-equivalent of the [redacted]-long-term-average climate, or (2) the updated
> SR-equivalent of the [redacted]-super-pluvial, with net mean annual infiltration
> corrected for [redacted] changes. The latter would be unarguably conservative. The
> former more realistic, perhaps, although it assumes that mean annual dose
> effects from expected dry climates and the expected wettest climates have
> little
> effect on the very long term dose histories. This would require sensitivity
> studies to first evaluate and then support.
>
> The [redacted] approach was a good one, but defending the time-history of climate
> changes is something that would be nice to avoid since it could lead to
> challenges and then having to evaluate the more conservative scenario anyway
> to
> show that assumptions meant little in the way of peak annual average doses.
>
> So my vote, until I am swayed by a discussion that argues well for the
> other, or
> an other, alternative, is to go with (2) as described above. I am inviting
> discussion. [redacted]
>
> [redacted]
> 09/17/99 12:03 PM
>
> To: [redacted]
> cc: [redacted]
>
> Subject: Re: Meeting Notes from September 16, 1999 [redacted] Meeting (Document
> link
> not converted)
>
> we can either:
>
> 1. continue the 10k climate for the rest of the duration (or pick highest
> climate state and run out to 1 M yr)
> 2. use the superpluvial climate used in the [redacted] for the rest of the duration
>
> In either case, we will look at the "expected" dose, which will "smooth out"
> the
> individual peaks (peak of mean approach in part 63) that may have occurred
> in
> the [redacted] when we looked at the mean of the peaks.
>
> The distinction is small. Perhaps we should run both for a single case
> (nominal
> performance, nominal inventory, nominal distance), see which is worse and
> run
> that for all other cases in the [redacted]. I will assume that approach for now.
>
> Bottom line, I don't think it requires management attention, we will simply
> do
> the reasonable thing and make the final assessment demonstrably conservative
> wrt
> future climate states.
>
> [redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 10/18/1999 11:39:18 AM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Meeting Notes from September 16, 1999 [redacted] Meeting ([redacted] and [redacted] implications)
Body:

---------- [redacted]

[redacted]
10/15/99 11:14 AM
[redacted]
cc:
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---------- [redacted]

[redacted]
10/04/99 05:18 PM
To: [redacted]
cc:
Subject: Re: Meeting Notes from September 16, 1999 [redacted] Meeting ([redacted], [redacted] and SR implications)

[redacted] climate argument--is this important?-[redacted]
---------- [redacted]

[redacted]
09/28/99 09:21 PM
To: [redacted]
cc: [redacted]

[redacted]

Subject: Re: Meeting Notes from September 16, 1999 [redacted] Meeting ([redacted], [redacted] and [redacted] implications)
Thanks for the enlightenment, [redacted] I was definitely under the wrong impression on the work being done for [redacted] and also regarding the nature of the P and T trends with a climate change.
Looking back over my emails i see that I misstated what was a discussion of changes relative to previous assumptions, NOT true out of that specific context. In fact, out of that context the opposite was true. The non-traceable and non-transparent statement after it was disconnected from its parent context and became flat-out wrong.
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[redacted]

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end part not printed

[redacted]

[redacted]

[redacted]

PostedDate: 08/05/1999 07:51:57 PM

[redacted]

CopyTo:
ReplyTo:
BlindCopyTo:
Subject: RE: [redacted]
Body:

Still planning to meet the Aug 31 deadline with 1st draft into tech review, so I'll be charging full-time to 4b this month (and probably next)..... I think 4b (is it [redacted]???) is running a surplus right now, but [redacted] may also be charging to this. [redacted] are helping me with the 1st draft as we speak. I've been boggled down with the Yucca Mt. site-scale AMR stuff which includes all the software QA. [redacted] has put a high priority on the deliverables for both the site and regional work so I'm burning the candle at both ends. The good news is that I'll be a lot more productive in [redacted] The bad news is that my productivity has been real bad the past month or two with all this moving and house buying crap. Life has been crazy ever since the gathering at the Longstreet Inn. But it feels real good to be working out of the [redacted] in the middle of [redacted]

Hopefully the proposals for the NTS work (the stuff we sent [redacted]) will go thru and then we'll be doing some serious leveraging of resources for FY00. I also need to get serious about getting together with [redacted] for the [redacted] stuff.....

got to go

[redacted]

[redacted] on 08/05/99 03:53:14 PM

cc:

Subject: RE: [redacted]

Piss on QA, how's your recharge report (due Aug 31, 1999) coming. By the way [redacted] may want to fund the transient recharge work!!!! Perfect for all you [redacted] types!

> -----Original Message-----
> From: [redacted]
> Sent: Thursday, August 05, 1999 3:51 PM
> To: [redacted]
> Cc: [redacted]
> Subject: [redacted]
>
>
>
>
> FYI
>
> [redacted] and I have responded to the recent issues concerning
> [redacted] We believe
> we've fixed all of the problems identified so that a stop work
> order should be
> averted. A copy of the fixed notebook was forwarded to [redacted]
> [redacted] We have
> not yet heard anything back from QA.
>
> [redacted]
>
>

[redacted]

[redacted]

From: [redacted]
PostedDate: 03/18/1998 01:02:35 AM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Additional Pieces for [redacted]
Body:
I agree. I had an interesting talk with [redacted] I may piss him off but I'm going to attack him shortly. He is way out of line on what he is doing. I have an assignment for providing information for [redacted] and I will need to have it done Thursday morning.
[redacted]

[redacted]

[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 03/18/1998 01:02:35 AM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Additional Pieces for [redacted]
Body: I agree. I had an interesting talk with [redacted] I may piss him off but I'm going to attack him shortly. He is way out of line on what he is doing. I have an assignment for providing information for [redacted] and I will need to have it done Thursday morning.
[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 03/22/1999 06:08:37 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Just Checking In
Body:
1. Software QA for the latest version of the model is coming along crappy. This is because there are some 11th hour changes taking place. The fall-back position is that the new models will be used only as supporting info for the developed data packages supporting the FY99 milestone report (we will use the 96 version of the infil code, which has been QA'd, to generate the final FY99 result.... this is mostly what [redacted] wants anyway).
2. Here's the minimum input data being used (both 96 and 99 version of model), which has for the most part already been QA'd:
1. Digital elevation data (data already QA'd)*
2. Geologic classification GIS map (already QA'd)*
3. Vegetation classification GIS map (already QA'd)*
4. Stream channel GIS map (already QA'd for 96 version of [redacted] model.... I need to double check this. There's some important data from NTS precipitation stations in here that have always been a QA gray zone)
5. Daily precipitation data (already QA'd)
6. Soil property data (already QA'd or available... I think)
7. Bedrock permeability (mostly already QA'd)
* I'm trying to complete the northward expansion to match the new area of the SZ model. I'm not sure what the QA status is for the new GIS coverages for data sets 1-5.
Here's what I'm hoping to add to this, if all goes well:
1. USGS stream flow data: this is all available data .... no QA needed. (This is used for calibration)
2. NCDC (Earth-Info) daily climate data (precip, air temp, snow cover): also available data, no QA needed
3. Better soils data. If we use the [redacted] data, I don't think it needs to be QA'd
3. I've had my [redacted] training (doesn't mean I know what I'm supposed to do, but I have hard copies of everything).
4. Scientific notebook OK (not perfect, but I'm getting help from [redacted] in this department).
5. For now, I'm hiding out from all tiger teams, like some outlaw in a Spaghetti Western. We're heading underground with the real work. Tell [redacted] he was supposed to destroy that memo.

[redacted]

03/22/99 02:27 PM
To: [redacted]
cc:
Subject: Just Checking In

[redacted] Just checking in to see how everything is going.
How's the software QA coming?
How's the model? Keeping up w/ the Scientific Notebook?
Have you had the [redacted] training? Do you understand what's required? Do you have any questions?
And the biggest one in my mind: what data are you using in the model?? Is any of it either unpublished, non-YMP or unreviewed YMP? Data package assembly has become even more onerous than before (hard to believe) and it's taking longer than ever to get data packages processed. If you have anything that is going to need review you'd better call me ASAP so we can get started on it.

I saw your emails to [redacted] about the [redacted]. Any new news on their plans for you??

Write back when you get a chance.

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 03/15/1999 10:14:50 PM
SendTo [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: [redacted] Hell
Body:

This memo actually hits the nail on the head. You are exactly right: One, yes, we will do the work, Two, yes, screw the tiger team (I don't know how yet but I'll figure it out), Three, yes, destroy this memo!

[redacted]

03/15/99 12:18 PM
To: [redacted]
cc:

Subject: Re: [redacted] Hell

[redacted]

[redacted] and I have been trying to figure out what's really coming at us with the tiger team effort. So far we've learned that they don't have a solid plan of action yet. I've formulated a "potential impact list" that is prioritized according to what work gets impacted 1st; 1. FY99 support to [redacted] (includes all the workshop stuff), 2. regional recharge report, 3. site-scale infiltration modeling report. Some of the work the tt effort calls for was scheduled under [redacted] QA anyway, but we started hearing rumors of things like re-doing all the QA work for the neutron logging data, which will stop us dead in the water.

Now I'm going to give you the inside scoop: I'm going to continue the regional modeling, even if it means ignoring direct orders from [redacted] management. I'm also going to be working on reports, even if it means ignoring direct orders from [redacted] management. [redacted] and [redacted] have a pretty clear vision of the type of work that needs to be done to stay alive for the long-haul, and it very definitely involves getting product out there for the users and the public to see. The [redacted] regional modeling work fits that bill. Screwing around with tiger teams does not. In the end, its going to be the reports that move everything else forward. [redacted] efforts will just be vaporized.

So, the work may be slowed, but I will not let it stop. At this point, I am still working to the plan that we've all spent a significant amount of time on to make things happen for FY99. That's the insider scoop. The position we will take for the [redacted] planners may be much different. So delete this memo after you've read it.

[redacted]

Please respond to [redacted]

To: [redacted]
cc: [redacted]

Subject: [redacted] Hell

I understand you're going to be sucked into the [redacted] for [redacted] site infiltration. Any idea how that will impact timing for your regional recharge model product for the year's end. Or are your just working every weekend and waking moment like all the rest of us?

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 03/15/1999 03:18:46 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: [redacted] Hell
Body:

[redacted]

[redacted] and I have been trying to figure out what's really coming at us with the [redacted] effort. So far we've learned that they don't have a solid plan of action yet. I've formulated a "potential impact list" that is prioritized according to what work gets impacted 1st; 1. FY99 support to [redacted] (includes all the workshop stuff), 2. regional recharge report, 3. site-scale infiltration modeling report. Some of the work the tt effort calls for was scheduled under [redacted] QA anyway, but we started hearing rumors of things like re-doing all the QA work for the neutron logging data, which will stop us dead in the water.

Now I'm going to give you the inside scoop: I'm going to continue the regional modeling, even if it means ignoring direct orders from YMP management. I'm also going to be working on reports, even if it means ignoring direct orders from YMP management. [redacted] have a pretty clear vision of the type of work that needs to be done to stay alive for the long-haul, and it very definitely involves getting product out there for the users and the public to see. The [redacted] regional modeling work fits that bill. Screwing around with [redacted] does not. In the end, its going to be the reports that move everything else forward. [redacted] efforts will just be vaporized.

So, the work may be slowed, but I will not let it stop. At this point, I am still working to the plan that we've all spent a significant amount of time on to make things happen for FY99. That's the insider scoop. The position we will take for the M&O planners may be much different. So delete this memo after you've read it.

[redacted]

Please respond to [redacted]

To: [redacted]
cc: [redacted]

Subject: [redacted] Hell

I understand you're going to be sucked into the [redacted] for UZ site infiltration. Any idea how that will impact timing for your regional recharge model product for the year's end. Or are your just working every weekend and waking moment like all the rest of us?

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 04/22/1999 09:52:39 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: status of new climate net-infiltration modeling
Body:
I thought I'd give you a "heads up" on the progress of work I've been doing with the results you've provided. Model simulations have been in progress but about 3 weeks ago I found a small error in the model input that was generated using the [redacted] data. The error was minor but would have created a QA nightmare so this was fixed and the simulations are being re-done (I'll send you a summary of the results when I get to this point).
I am about to submit a "developed datapackage" milestone consisting of the climate input files (7 files for the 7 sites you identified) that are being used by the net-infiltration model. The input files are basically re-formatted [redacted] export files with a minor amount of parameter estimation occurring to fill small gaps in the record (even for the high ranking sites, there are gaps all over the place).
Here's the weird news; to get this milestone through QA, I must state that I have arbitrarily selected the analog sites. At first, I was going to include your email as supporting information in the data package, and discuss the work we did using the worksheets consisting of candidate sites, but since there is no [redacted] for your results the message I am getting from QA is that I can't use or refer to those results. In other words, I was trying to give you credit for your part in all this, as well as provide all info possible for the traceability of the analog climates, but this seems to create problems rather then solving them.
So for the record, the seven analog sites have been arbitrarily (randomly) selected. Hopefully these sites will by coincidence match the sites you have identified.
[redacted]

P.S. please destroy this memo

[redacted]

Author: [redacted]
From: [redacted]
PostedDate: 04/03/1998 10:14:24 PM
SendTo: [redacted]
CopyTo: [redacted]

ReplyTo:
BlindCopyTo:
Subject: Re: Infiltration and UZ flow
Body: [redacted]

So, you now have more hard evidence for the [redacted] model? I'm surprised you didn't say "I told you so!".
Could our [redacted] approximation suffice to model the phenomena you discuss below?
I suggest you send your e-mail to [redacted] and others in 1.2.3. Also, to [redacted]
Also, to [redacted] to get his dander up.

I think the main thing here is that if you think the flow will contact significantly fewer waste packages than what we are saying in our base case, then we are being way over conservative, especially considering that the fraction of packages seeped upon in the [redacted] is the most important performance parameter.

It seems too late now to change the base case. What do you propose?

[redacted] 04/03/98 04:19:40 PM
To: [redacted]
cc:
Subject: Infiltration and UZ flow

[redacted]

I have some maybe bad and maybe good news that you should be aware of. [redacted] called me 2 weeks ago and said that he had tested the first sample of core from [redacted] at [redacted] and it had a concentration of 39 mg/l of chloride. This means that the flux is at most 2 or 3 mm/yr in this high infiltration zone ([redacted] is at the crest of YM). There are some implications that I did not realize until I talked them over with [redacted] yesterday: basically, either our infiltration model is wrong or our [redacted] flow model is wrong or both.
Infiltration model wrong? If we look at 2 analog sites, we see much different behavior than predicted by our infiltration model. At [redacted], the best estimate for infiltration is about 24 mm/yr in the center, under a wash, decreasing to about 10 mm/yr a mile away, decreasing to virtually nothing around G-tunnel (the southern edge). Also, the [redacted] method predicts a recharge of ~20 mm/yr. Our infiltration model predicts about 40 mm/yr--our [redacted] climate.
At [redacted], the [redacted] and [redacted] site in [redacted], there are drips in 2 parts of the tunnel: under a perched water body and under a wash. The drips under the wash are significant, but only immediately after the wash is flowing. Our infiltration model has virtually no infiltration in washes; what infiltration there is in washes is basically put there as a fudge factor. (I don't want to be too critical here--I could probably tear apart any of our models. Did somebody say seepage? And [redacted] did do us a great favor n helping us out for [redacted]) [redacted]-flow model wrong? Looking at the same analog sites, we see that flow is not ubiquitous. It is in isolated paths, typically associated with locally saturated conditions. If flow is in isolated paths, we would get high chloride in the [redacted] almost everywhere we look (amd

[redacted]

we would get high Cl-36 in a few places in the ESF too, but that is another story). At [redacted], the drips average 100+ m apart (from the memory of [redacted], not from data). Also at [redacted], the perched water is in vertical slices separated by sections of dry fractures and faults. There is no evidence that the perched water flows along the top of the vitric/interface. Rather, it is more likely (from geochem data) that the perched water drains from below (I am guessing because it builds up a head). Again, this behavior suggests isolated flow paths. I will not go into [redacted] but the message there is similar.

Both wrong? The analogs, and now the chloride data, suggest a model where most infiltration/recharge is in isolated zones, perhaps at points along washes, and that most flow occurs in isolated, locally saturated ribbons immediately below the infiltration points.

Does it matter? Well, the good news is, as [redacted] pointed out to me, that most of this is probably better for performance. (The only thing that could hurt performance is that flow in CHnv might not be in the matrix either.) The bad news is that it might hurt our credibility. The point we probably need to make in [redacted] is that our modeling is conservative, because: (1) the lower the infiltration, the fewer containers are contacted, and the less waste is released; (2) the more isolated the flow paths, the fewer containers are contacted, etc.; and (3) diverting the water around the zeolitized rock minimizes retardation. The unfortunate thing here is that the way we have the natural system modeled, we are probably not giving it enough credit.

[redacted]

[redacted]

[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 04/03/1998 10:14:24 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: Infiltration and UZ flow
Body: Dear [redacted]
So, you now have more hard evidence for the [redacted] model? I'm surprised you didn't say "I told you so!".
Could our DKM Weeps approximation suffice to model the phenomena you discuss below?
I suggest you send your e-mail to [redacted] and others in 1.2.3. Also, to [redacted].
Also, to [redacted] to get his dander up.
I think the main thing here is that if you think the flow will contact significantly fewer waste packages than what we are saying in our base case, then we are being way over conservative, especially considering that the fraction of packages seeped upon in the LTA is the most important performance parameter.
It seems too late now to change the base case. What do you propose?

[redacted] on 04/03/98 04:19:40 PM
To: [redacted]
cc:
Subject: Infiltration and UZ flow

[redacted] --

I have some maybe bad and maybe good news that you should be aware of. [redacted] called me 2 weeks ago and said that he had tested the first sample of core from PTn at [redacted] and it had a concentration of 39 mg/l of chloride. This means that the flux is at most 2 or 3 mm/yr in this high infiltration zone ([redacted] is at the crest of YM). There are some implications that I did not realize until I talked them over with [redacted] yesterday: basically, either our infiltration model is wrong or our UZ flow model is wrong or both.

Infiltration model wrong? If we look at 2 analog sites, we see much different behavior than predicted by our infiltration model. At [redacted], the best estimate for infiltration is about 24 mm/yr in the center, under a wash, decreasing to about 10 mm/yr a mile away, decreasing to virtually nothing around G-tunnel (the southern edge). Also, the [redacted] method predicts a recharge of ~20 mm/yr. Our infiltration model predicts about 40 mm/yr--our [redacted] climate. At [redacted], the [redacted] and [redacted] site in [redacted], there are drips in 2 parts of the tunnel: under a perched water body and under a wash. The drips under the wash are significant, but only immediately after the wash is flowing. Our infiltration model has virtually no infiltration in washes; what infiltration there is in washes is basically put there as a fudge factor. (I don't want to be too critical here--I could probably tear apart any of our models. Did somebody say seepage? And [redacted] did do us a great favor in helping us out for [redacted]) UZ-flow model wrong? Looking at the same analog sites, we see that flow is not ubiquitous. It is in isolated

[redacted]

paths, typically associated with locally saturated conditions. If flow is in isolated paths, we would get high chloride in the PTn almost everywhere we look (and we would get high Cl-36 in a few places in the ESF too, but that is another story). At [redacted], the drips average 100+ m apart (from the memory of [redacted] not from data). Also at [redacted] the perched water is in vertical slices separated by sections of dry fractures and faults. There is no evidence that the perched water flows along the top of the vitric/interface. Rather, it is more likely (from geochem data) that the perched water drains from below (I am guessing because it builds up a head). Again, this behavior suggests isolated flow paths. I will not go into [redacted], but the message there is similar.

Both wrong? The analogs, and now the chloride data, suggest a model where most infiltration/recharge is in isolated zones, perhaps at points along washes, and that most flow occurs in isolated, locally saturated ribbons immediately below the infiltration points.

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The point we probably need to make in [redacted] is that our modeling is conservative, because: (1) the lower the infiltration, the fewer containers are contacted, and the less waste is released; (2) the more isolated the flow paths, the fewer containers are contacted, etc.; and (3) diverting the water around the zeolitized rock minimizes retardation. The unfortunate thing here is that the way we have the natural system modeled, we are probably not giving it enough credit.

-- [redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 03/06/2000 01:54:51 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: USGS AMRs
Body:

What a circus (see emails below).....
I re-wrote blockr7 to use the following [redacted] grid files as input:

[redacted]: the composite DEM created by [redacted]
[redacted]: latitude (decimal degrees) for each grid cell calculated by [redacted]
[redacted]: longitude..... calculated by [redacted]
[redacted]: slope calculated by [redacted]
[redacted]: aspect calculated by [redacted]
[redacted]: the soil type map, rasterized by [redacted]
[redacted]: the depth class map, rasterized by [redacted]
[redacted]: the rock type map ([redacted] and [redacted] only), rasterized by [redacted]
[redacted]: the topographic ID (I must assume that this was produced in ARCINFO by [redacted] using the [redacted]. Because it is only a place holder and not actually used by the model it doesn't matter but the parameter has been carried through the pre-processing and is in all the *.[redacted] files used as input for [redacted])

So once the DEMs, the geology, the soil type, and the soil depth class maps make it into the TDMS, [redacted] will provide a link to [redacted] which is the file I started with in 1996. The link between the source data in the TDMS and the ASCII grid files above are all standard [redacted] operations (except for maybe the topo ID stuff) so this should get us to full traceability.

I checked the blocking ridge calculations using [redacted] and they do not match what is in [redacted]. The skyview map produced by the new version of [redacted] looks reasonable. I have not yet incorporated [redacted] latest fixes to [redacted] for the improved version. I am just trying to re-produce the blocking ridge values provided to me in [redacted] back in 1996, and I have not yet been able to do this. Again, the original calculation was not done by me and at this point I have no direct trace of the the blocking ridge values in [redacted] to the actual calculation. I do have a copy of [redacted] provided to me by [redacted] and I am now using this to check the [redacted] calculations. [redacted] do you have the original [redacted] program that was used to create the values in [redacted] Also, could you send me a copy of the improved version so that we can start with the better numbers for the regional modeling?

I can fudge the attachment for [redacted] for now but eventually someone may want to run [redacted] to see what numbers come out and at that point there will be problems, although it is my belief for now that an impact analysis would reveal that the differences are not critical to the end result.

---------- Forwarded by [redacted] 03/06/2000 10:19 AM ----------

[redacted]
03/06/2000 09:33 AM
To: [redacted]
cc: [redacted]

Subject: Re: USGS AMRs

Yes - will fedex it and fax it to [redacted]
What is your fax number so we can copy you on it . [redacted]
03/06/2000 08:12 AM
To: [redacted]

[redacted]

cc: [redacted]

Subject: Re: USGS AMRs
I think we're on board - you or [redacted] will iniate a 3.14 request?

[redacted]
03/06/2000 08:11 AM
To: [redacted]
cc: [redacted]

Subject: Re: USGS AMRs
Please note that these are two separate issues:
[redacted] - is an output data transmittal needed for a number of AMRs. This is needed in the TDMS regardless of the status of the AMR [redacted] We are burning CDs and sending you copies of what you sent us for this transmittal and the other [redacted] data recevied. Please note that [redacted] in Las Vegas ([redacted]) also has copies of these data. We will also send you these by email, though I am concerned that the files are large and may be difficult to transmit (We will send the files later this morning in separate emails).
[redacted] of the AMR [redacted] - If the AMR will not be complete by the time the [redacted] PMR is issued, then the AMR itself (a DRAFT version) must be submitted as an [redacted] transmittal. Otherwise the PMR can not be finalized. This is a recent approach to deal with the possibility of an AMR not being complete before the due date of the PMR.
I hope this clarifies these two separate issues.

[redacted]
03/06/2000 05:34 AM
To: [redacted]
cc: [redacted]

Subject: Re: USGS AMRs
I am not sure what you mean by "This is a different [redacted] Transmittal." Is this not [redacted] that we have been talking about? If not what is the correct [redacted] Input Transmittal number? I am not aware of one for the DRAFT version of AMR [redacted]. Are you saying that a copy of the DRAFT version must be placed in the TDMS? Or are you just asking for a copy be transferred to LBNL through an [redacted] Transmittal Request?
The [redacted] process does not include a step that maintains a copy by the originating office (in the case of [redacted]) to be placed in the TDMS. USGS management is developing a process to do this at this time. However, because our Data Management Section does not have a copy of the data transmitted to you through [redacted] nor do we have the data nor a data summary sheet explaining the pertainent information about the data. We are having difficulty recreating the data set that you were given and placing it in the TDMS. I assumed after our phone conversation last week that you would help provide that needed information, but have not received anything from you yet. If you cannot provide the information, please let me know and I will try other means.

[redacted]
03/04/2000 06:21 PM
To: [redacted]
cc: [redacted]

Subject: Re: USGS AMRs
This is a different [redacted] Transmittal. It will be necessary to transmit a DRAFT verison on the AMR [redacted]. The previous transmittal was for the output data. This is required because the document and its conclusions are referenced and utilized in the PMR.

[redacted]
03/03/2000 12:34 PM

[redacted]

To: [redacted]
cc: [redacted]

Subject: Re: USGS AMRs
The information was transferred via [redacted] last fall.

[redacted]
03/03/2000 12:25 PM
To: [redacted]
cc: [redacted]

Subject: Re: USGS AMRs
[redacted]
In order for the PMR to be submitted with the Infiltration AMR unfinished, any information used in the PMR from this AMR will have to be covered through use of a [redacted] preliminary input transfer. If the AMR is not far enough along to be used in draft form, then an alternative will have to be developed. I assume [redacted] will work with [redacted] and [redacted] to make sure we have the paperwork correctly done to make this happen.
[redacted]

[redacted]
03/03/2000 08:27 AM
To: [redacted]
cc: [redacted]

Subject: USGS AMRs
I'll cut to the chase:
Infiltration AMR: Will not be completed by 3/13 - it needs to be put into the category of "the rare ones that get completed after the PMR is submitted. We fully intend to complete during the period of the DOE PMR review. It has not been submitted for checking at this point. The Infiltration AMR should be
taken off the interactive review schedule next week.
Climate AMR: Issues remaining, get the damn [redacted] in shape and a couple of other minor issues - we've already received [redacted] comments, have proposed responses, and as soon as [redacted] stuff is fixed will return for concurrence of responses. I'm not sure the interactive review next week will help - especially as [redacted] will not be there. I do believe we can get this one approved prior to 13th!

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 07/08/1998 03:48:13 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: don't be jeolous
Body:

You may be jeolous about a one-day event I had, but I'm sure as hell jeolous about the office you get to work in 5 days out of 7. I don't know how much longer I can take this cube shit. There are days when I seriously ponder the thought of quitting.

[redacted]

[redacted]

From: [redacted]
PostedDate: 05/11/1998 03:44:35 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: [redacted] Flow (+climate+infiltration) section for [redacted] document
Body:
FYI. Still don't know quite how to handle the air temp glitch. I'm continuing to keep mum about this, but, from a scientific integrity standpoint, it is tempting to let the end users know exactly what was provided to them in terms of effectivley cooler future climate simulations. Problem is, I don't know how to do this without looking bad. If we can let it all pass without trying to attach DTN numbers to these results (the prefered choice), then I can forget about it and just concentrate on getting results out for the new model. If they (DOE) force us to put DTNs on these things, I would rather the truth come out sooner than later.
Don't need to respond to this, we can talk about it later.
---------- Forwarded by [redacted] on 05/11/98 12:24 PM ----------

[redacted] on 05/04/98 03:00:49 PM
To: [redacted]
cc: [redacted]
Subject: [redacted] Flow (+climate+infiltration) section for [redacted] document

---
[redacted]: text
[redacted]: text
[redacted]: text
[redacted]s-ascii
[redacted]Lines: 15
To all --
Attached is the first draft of the [redacted] Flow section (which includes climate and infiltration as well as flow) for the [redacted] document. It is in two Word 97 files, one for the text and one for the figures. We are already behind schedule in submitting this section to the [redacted] Electronic Storyboard, so I would appreciate any comments or suggestions you may have by the end of this week (May 8). It is about 15 pages of text, and several figures. You are welcome to comment only on the sections that you are interested in, of course.
If you can't read the [redacted] files, let me know and we can get it to you in some other format.
-- [redacted]

[redacted]: default-app
[redacted]: default
[redacted]:
[redacted]: uuencode
[redacted]

[redacted]

[redacted]

Attachment: [redacted]
Attachment: [redacted]

[redacted]

[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 06/18/1998 04:48:09 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re:
Body: Actually I like the [redacted] study but I'm now tracking down [redacted] discharge data. I asked [redacted] for help tracking it down but I would suggest we start an all out effort to track down ALL stream flow records for our study area. That may be all the data we have to calibrate with. I need the NTS precipitation data fairly soon (I know, I also have way to much stuff to do). Send me the address, or person to call, to get the [redacted] data on CD, I'll order another copy and start working with that. Actually I may not need the [redacted] as I am getting a copy tomorrow of all the data for the [redacted] going back to 1900 (hand entered to 1948 from microfiche, the rest came from [redacted]) and I sort of promised to share the [redacted] data. They are USGS people in [redacted] and we will be working with them next year. Did you know there is a USGS map of every precipitation event for the [redacted] since 1948? At least that's the rumor. They (I actually don't know who they are yet but may be in [redacted]) use precipitation data from every station available and then used some sort of elevation correlation (they don't have the [redacted] stations). I'm looking into that now and should get all the maps by mid July (we may get scooped on a bunch of stuff). Fun being busy isn't it?

[redacted]

06/18/98 01:47 PM
To: [redacted]
cc:
Subject: Re:

I'm finishing up the [redacted] report (concentrating only on those items [redacted] originally requested me to look at ... I talked this over with [redacted] yesterday). I've been meaning to send you a program that will convert the 6 regional strips you have back to the original *.[redacted] file format, but I got sidetracked a little with the planning stuff. Let me finish [redacted] and I will get you the code (I'm close to finishing it). I wanted to have these simulations running this week. But I also wanted you and [redacted] to look at what I'm using for effective permeabilities. I'm trying to clean up a worksheet I have so that you and [redacted] can understand it.

As far as FY99 modeling goes, there are several areas that we can always use help in; programming, GIS, and anyone capable of getting a simulation going, compiling the results, creating maps and graphs of the output, and helping me compile and update the climate database, streamflow records (along with any other calibration data), and the future climate stuff. You and I may be the only ones developing the model code, but even some part-time help from someone with programming skills would be a tremendous boost to keep things going (the small re-formatting program above is a great example), and to have software QA keep in step with model improvements. I don't know who this person would be, and there we have a dilema. At least we are making an effort to improve out GIS expertise.

As far as the [redacted] stuff and the regional stuff goes; 1. We never seem to be certain about the funding level from [redacted] until the planning is over and done with ..... I wanted to have a backup to keep the regional effort going. 2. We are doing the same amount of work on the regional scale wether we get the money for [redacted] or not, so why not try to get the money? All we have to do is a few extra simulations in [redacted]. Its like we'll get paid twice for the same work (and I don't feel bad about this considering how little we're getting paid for the work this year ..... in my mind it will all even out in the end). 3. I'm still not convinced that there will not be another round of planning where we have to try to cut 50% of the funding we are asking for now. Then we can just get rid of the [redacted]. Geeze... I spent too much time on this email... gotta go!

[redacted]

[redacted]

From: [redacted]
PostedDate: 06/18/1998 04:47:34 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re:
Body:
I'm finishing up the [redacted] report (concentrating only on those items [redacted] originally requested me to look at ... I talked this over with [redacted] yesterday). I've been meaning to send you a program that will convert the 6 regional strips you have back to the original [redacted] file format, but I got sidetracked a little with the planning stuff. Let me finish [redacted] and I will get you the code (I'm close to finishing it). I wanted to have these simulations running this week. But I also wanted you and [redacted] to look at what I'm using for effective permeabilities. I'm trying to clean up a worksheet I have so that you and [redacted] can understand it.
As far as FY99 modeling goes, there are several areas that we can always use help in; programming, GIS, and anyone capable of getting a simulation going, compiling the results, creating maps and graphs of the output, and helping me compile and update the climate database, streamflow records (along with any other calibration data), and the future climate stuff. You and I may be the only ones developing the model code, but even some part-time help from someone with programming skills would be a tremendous boost to keep things going (the small re-formatting program above is a great example), and to have software QA keep in step with model improvements. I don't know who this person would be, and there we have a dilema. At least we are making an effort to improve out GIS expertise.
As far as the [redacted] stuff and the regional stuff goes; 1. We never seem to be certain about the funding level from [redacted] until the planning is over and done with ..... I wanted to have a backup to keep the regional effort going. 2. We are doing the same amount of work on the regional scale wether we get the money for [redacted] or not, so why not try to get the money? All we have to do is a few extra simulations in [redacted]. Its like we'll get paid twice for the same work (and I don't feel bad about this considering how little we're getting paid for the work this year .... in my mind it will all even out in the end). 3. I'm still not convinced that there will not be another round of planning where we have to try to cut 50% of the funding we are asking for now. Then we can just get rid of the [redacted] WP.
Geeze... I spent too much time on this email... gotta go!

[redacted]

[redacted]

From: [redacted]
PostedDate: 03/17/1999 07:10:05 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Jury summons
Body:

They want me to go down on April 19nth. I've been putting together the new future climate input sets; I need to be running simulations while I'm writing reports. I'm also putting together a real simple snow cover model for now; the degree-day approach. I've been working on programs that pull in the earthinfo export files (precip, max temp, min temp), combine the files into one, check for gaps, estimate missing values, and generate output that is usable for [redacted] modeling or the next step in climate modeling; spatial interpolation of daily input. I think when I'm done this will be applicable to the [redacted] study. I think we can generate one file that will contain a precip map for each day for a 100-year record.

This work also needs to get done for a level 4 milestone coming up end of April for [redacted]. Basically I have two weeks left to get this done so [redacted] can start the technical reviews of the developed data 1st part of April. Also, I need to get it out of the way so we can have some lee-way for putting the [redacted] stuff together, and so I can get back to writing.

Either the regional modeling or the site scale modeling will get into trouble if I'm the only one working in it. The 176k for [redacted] assumed about .5 FTE beyond my time for things like model calibration, QA, model development, and up-dating input files. At this point the regional modeling is suffering because I've focused everything on [redacted]. You and I are the only ones that seem to know [redacted] programming so that puts us in a bind. On the other hand, it wouldn't take that much time to show someone like [redacted] or [redacted] how to run the model for calibration (only worksheet skills are needed here, although [redacted] skills are also very helpful). I'm hoping to have a final FY99 site-scale model together by the time I come out to [redacted] (1st or 2nd week of April) so we can go into full-time calibration run mode.

What resources beyond our own group could I be tapping to solve the [redacted] FTE problem? For example, I've thought about: 1. [redacted] student help (administrative hassle factor may be high), 2. [redacted] (administrative hassle factor high), 3. [redacted] support [redacted] is ready to help us out with the uncertainty analysis.... I think we can make some headway without handing over the source code, which has been my biggest worry), 4. Student help from either [redacted] or [redacted], 5. YMP USGS ([redacted] ....)

Gotta go... I've spent way too much time on this email

[redacted]
03/16/99 07:29 PM
To: [redacted]
cc:

Subject: Re: Jury summons

I think you're stuck. You get USGS pay and they, supposedly, get the money. I think you should just go in an do the jury duty. Chances are there will be 50 people of whom 12 will be picked. If you are picked it will likely be for only a day. Sorry.

[redacted]
03/16/99 11:47 AM
To: [redacted]
cc: [redacted]

Subject: Jury summons

[redacted]

[redacted].

I've just received my 2nd notice for a summons to the [redacted] judicial district court jury duty in [redacted] (I ignored the 1st one back in October 98). This one warns me that I could go to jail if I continue to ignore this. I called the court today and they want me to find out how the USGS handles pay for this leave situation.

Is there a way to have the USGS over-ride this summons? I cannot afford to stop working on what I'm working on now to go sit in a Jury (unless the trial doesn't last longer than half a day), and it has nothing to do with money.

At any rate, I don't think I can just say the dog ate it.

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 10/29/1998 07:41:37 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Design Features 23/24 - Period of Effectiveness
Body:
enjoyed the ranting and raving. We're trying to work with the engineers because thats where the funding's going. Leveling the top of the mountain seemed humorous but it gave me the chance to make some more cool figures. This little task is history now. Wait till they figure out that nothing I've provided them is QA. If they really want the stuff they'll have to pay to do it right.

[redacted]
10/29/98 03:31:59 PM
To: [redacted]
cc:
Subject: Re: Design Features [redacted] - Period of Effectiveness
This sure is an interesting viewpoint. The desert pavement forms on areas where the slope is generally less than 1 to 2 percent. You don't generally see pavement on slopes of 10% or more. The other idea that I love is engineered modifications. As he notes, the natural system is very stable, so why do we have to fool with it. The other idea they are not looking at is caliche. In area where there is well developed caliche, one could expect erosion to that surface but then extremely limited erosion of the well cemented carbonates. These are usually old truncated surfaces that have had new material deposited on them. These show part of the erosion/deposition processes that occur in arid environments. The natural system exists for a reason and it got there without engineers screwing with it. I am starting to rant and rave so I should get back to my other work.
Thanks for sending the information to me. I find these things interesting.
[redacted]

[redacted]
10/29/98 03:21 PM
Sent by: [redacted]
To: [redacted]
cc:
Subject: Re: Design Features [redacted] - Period of Effectiveness
FYI: The engineering perspective on this. I meant to send this earlier (If I already did, ignore this... I may have gone senile)
---------- Forwarded by [redacted] on 10/29/98 02:24 PM ----------

[redacted]gov on 10/28/98 04:26:21 PM
To: [redacted]
cc: [redacted]
Subject: Re: Design Features [redacted] - Period of Effectiveness
Thought I would put in my 'two bits worth" on this subject. Afterall, the [redacted] life expectency has a lot to do with the engineering design. I would welcome comments.
The design for [redacted] calls for armoring the soil blanket with rip-rap. In nature, desert nature that is, the rip-rap is called desert pavement. We can see that the desert pavement effectively protects the soil from wind, rain, snow, sleet, etc, so that the mass transport erosion is confined mainly to the washes. If the rip-rap is applied properly to imitate nature, then why can't we assume a similar protection for our man-made desert pavement? Also, the average erosion rates there are extremely small - 0.19 cm/ka average for Yucca Mountain hillslopes. Could expect similar erosion rates with the rip-rap protection? If we look at the ages of the hillslopes at YM, we see it ranges from 170 to 760 ka. I would not suggest that our engineering effort could last this long, but it is certain to last at least 1 ka., and possibly 10 ka's or more (100's of ka's?). I proposed at one time a very conservative approach with 1000 years. Let's face it, the desert topography is very stable and long living so why can't we expect

[redacted]

our modifications to last just as long? Comments?
For design [redacted], I would think that this would last somewhat shorter than #[redacted]. Eventually, chemical, and mechanical erosion of the bedrock will creat soil over the exposed bedrock. I am not sure how fast it would form, but it would be very slow. I would think that the 1000 year life would be conservative. Comments?

[redacted] on 10/28/98 03:59:33 PM
To: [redacted]
cc: [redacted]
Subject: Design Features 23/24 - Period of Effectiveness

[redacted]

In the analysis of [redacted] & [redacted], we will need to make an assumption regarding how long these surface modifications remain effective.
Can you fellows suggest a reasonable range of time periods that can be assigned to these two features? I propose doing RIP calculations where the infiltration maps are changed depending on the time period of DF effectiveness.
Alternatively, if you can provide a technical basis for assuming these DFs would be effective for 10,000 yrs, this would work also.
We will need this input from you this week in order to stay on schedule.
Thanks, [redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 12/18/1998 05:25:24 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: AP [redacted]
Body:
Wow! Thanks for this very thoughtful and philosophically charged wealth of advice. I here exactly what you say. YMP is looking for the fall guys, and we are high on the list. I got a strong feeling at the [redacted] meeting that high level folks are starting to pay very close attention to who they will come after when things hit the fan. Who got how much funding at what time will all be long forgotten when the lawyers start challenging credibility of results. It was made clear that this will be like the OJ trial, where results are completely thrown out because of minor procedural flaws or personal attacks on credibility. As [redacted] told the lawyer who was there, YMP doesn't stand a snowball's chance in hell of making this work if that is the approach.
As far as the 98 and 99 modeling, I'm starting the write-ups now. Much of this is already being covered in the NLPs and APs so I can kill 2 birds with the same stone. I much as I think [redacted] may help us out with some things, I am going to be very careful that [redacted] doesn't end up taking credit for our work.

[redacted]

12/17/98 08:47 PM
To: [redacted]
cc:
Subject: Re: AP 3.10Q

I agree with your analysis. We only win if we get the final product out. I have to think through this carefully but where I'm headed is this. [redacted] and I will make sure we get the 96 report done (you need to call [redacted] ASAP, just in case she needs input from you on Friday). You, on the other hand, need to start the FY99 report, assuming the FY96 gets approved. You need to lay out the changes you've made to the model, how you've tested or calibrated those changes (stream gage, neutron (I've already started working on a new neutron hole analysis which I had hoped to finish this vacation but won't be done until later I'm sure)), what the results are, and what difference it makes, Do this for the site scale as your basis for the change to the model and as the basis of the report. Then start another report, which uses the first report, to lay out the regional model. Both report will address past and future climates. That's where I'm heading but I'm not there yet. We can discuss this tomorrow.

[redacted]

The bottom line is forget about the money, we need a product or we're screwed and will take the blame. EVERYBODY will say they told us to go ahead without a plan or budget in place (even though [redacted] said no hires). This is now CYA and we had better be good at it. I seem to have let this one slip a little to much in an attempt to cover all our work (and get us the hell out of the long term problem of Yucca Mountain) but now it's clear that we have little to no choice. In all honestly I've never felt well managed or helped by the USGS YMP folks, in fact, as you know, I've often felt abandoned. This time it's no different, or worse, and we have to work together to get out of this one. I'm still overwhelmed trying to protect the rest of the program from the ravages of what's happening in [redacted] (funding, which we seem to be blamed for because we got funding) and the current [redacted] fiascoes in the [redacted]. That is to say we're not working on our own as we have for the past 12 years, now were being threatened (and carefully watched) by the people who use to simply ignore us. These are very dangerous time, both funding wise and professionally. Mark my words on this one, it will not be long before our technical credibility with be challenged in an attempt to discredit us and redirect funding!
Oh, by the way, you did a great job in response to [redacted] request. Bravo!!

(keep my last paragraph prvate or among friends, if you know who they are)

[redacted]

[redacted]

12/17/98 06:57 PM
Sent by: [redacted]
To: [redacted]
cc:
Subject: Re: [redacted]

FYI: The work plan PA has put together as a result of the meeting this week includes model hand-offs (TBVs documented using NLP [redacted]) which will all eventually be QA'd using [redacted] (see attachment below). [redacted] is going to be the PA lead on the [redacted] for the FY98 model. We're not sure how smoothly this is going to go but this is the approach. Like you've said all along, YMP has now reached a point where they need to have certain items work no matter what, and the infiltration maps are on that list. If USGS can't find a way to make it work, [redacted] will (but for now they are definately counting on us to do the job). [redacted] totally supports paying for a USGS report on the FY98 model, but they fully realize the problems we're having with the [redacted] approval thing.

I've had no response from [redacted] concerning my response to his request for an FY99 work plan using the close-out funds. [redacted] has indicated that I can charge all my time this year to the [redacted] account. There was also good indication this week that [redacted] is willing to support us in FY00 to continue on with model validation and uncertainty work, and to deal with FEPs addressing the infiltration maps. The 110k provided to USGS was in direct response to the telecon and was specifically intended for infiltration modeling work. I can no longer wait for USGS to figure this out; I'm moving ahead according to the [redacted] work plan we put together this week.

What I really need now are some warm bodies to review the work I've been doing.

Like [redacted] said, "Live by the sword, die by the sword!".

---------- Forwarded by [redacted] 12/17/98 06:15 PM ----------

[redacted]
12/17/98 05:01 PM
Sent by: [redacted]
To: [redacted]
cc: [redacted]
Subject: Re: [redacted]

[redacted]
Thanks much! Yes, I very much need to take a close look at this. I was just about to request this when I saw your note.
[redacted] has been mentioned quite a number of times this week.

[redacted]
12/17/98 12:01 PM
To: [redacted]
cc:
Subject: AP [redacted]

Hello, I thought you might like an electronic copy of the new AP. Like? Well, anyway, will need to be familiar with....
Merry Christmas
---------- Forwarded by [redacted] on 12/17/98 02:04 PM ----------

[redacted]
12/17/98 11:05 AM
To: [redacted]
cc:
Subject: AP [redacted]
Per your request below is the electronic version of [redacted] as it was approved.
[redacted]
---------- Forwarded by [redacted] 12/17/98 10:04 AM ----------

[redacted]

[redacted]

12/08/98 04:18 PM
To: [redacted]
cc: [redacted]
Subject: AP [redacted]
They restored our files - so here it is.

Attachment: [redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 12/17/1998 11:47:08 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: AP[redacted]
Body:

I agree with your analysis. We only win if we get the final product out. I have to think through this carefully but where I'm headed is this. [redacted] and I will make sure we get the 96 report done (you need to call [redacted] ASAP, just in case she needs input from you on Friday). You, on the other hand, need to start the FY99 report, assuming the FY96 gets approved. You need to lay out the changes you've made to the model, how you've tested or calibrated those changes (stream gage, neutron (I've already started working on a new neutron hole analysis which I had hoped to finish this vacation but won't be done until later I'm sure)), what the results are, and what difference it makes. Do this for the site scale as your basis for the change to the model and as the basis of the report. Then start another report, which uses the first report, to lay out the regional model. Both report will address past and future climates. That's where I'm heading but I'm not there yet. We can discuss this tomorrow.

[redacted]

The bottom line is forget about the money, we need a product or we're screwed and will take the blame. EVERYBODY will say they told us to go ahead without a plan or budget in place (even though [redacted] said no hires). This is now CYA and we had better be good at it. I seem to have let this one slip a little to much in an attempt to cover all our work (and get us the hell out of the long term problem of Yucca Mountain) but now it's clear that we have little to no choice. In all honestly I've never felt well managed or helped by the USGS YMP folks, in fact, as you know, I've often felt abandoned. This time it's no different, or worse, and we have to work together to get out of this one. I'm still overwhelmed trying to protect the rest of the program from the ravages of what's happening in [redacted] (funding, which we seem to be blamed for because we got funding) and the current [redacted] fiascoes in the [redacted]. That is to say we're not working on our own as we have for the past 12 years, now were being threatened (and carefully watched) by the people who use to simply ignore us. These are very dangerous time, both funding wise and professionally. Mark my words on this one, it will not be long before our technical credibility with be challenged in an attempt to discredit us and redirect funding!

Oh, by the way, you did a great job in response to [redacted] request. Bravo!!

(keep my last paragraph prvate or among friends, if you know who they are)

[redacted]
12/17/98 06:57 PM
Sent by: [redacted]
To: [redacted]
cc:
Subject: Re: [redacted]

FYI: The work plan [redacted] has put together as a result of the meeting this week includes model hand-offs (TBVs documented using [redacted]) which will all eventually be QA'd using AP [redacted] (see attachment below). [redacted] is going to be the PA lead on the AP [redacted] for the FY98 model. We're not sure how smoothly this is going to go but this is the approach. Like you've said all along, YMP has now reached a point where they need to have certain items work no matter what, and the infiltration maps are on that list. If USGS can't find a way to make it work, [redacted] will (but for now they are definately counting on us to do the job). [redacted] totally supports paying for a USGS report on the FY98 model, but they fully realize the problems we're having with the [redacted]

approval thing.

[redacted]

I've had no response from [redacted] concerning my response to his request for an FY99 work plan using the close-out funds. [redacted] has indicated that I can charge all my time this year to the [redacted] account. There was also good indication this week that [redacted] is willing to support us in FY00 to continue on with model validation and uncertainty work, and to deal with FEPs addressing the infiltration maps. The 110k provided to USGS was in direct response to the telecon and was specifically intended for infiltration modeling work. I can no longer wait for USGS to figure this out; I'm moving ahead according to the [redacted] work plan we put together this week.

What I really need now are some warm bodies to review the work I've been doing.

Like [redacted] said, "Live by the sword, die by the sword!".

---------- Forwarded by [redacted] on 12/17/98 06:15 PM ----------

[redacted]
12/17/98 05:01 PM
Sent by: [redacted]
To: [redacted]
cc: [redacted]
Subject: Re: AP [redacted]

[redacted]
Thanks much! Yes, I very much need to take a close look at this. I was just about to request this when I saw your note.
AP[redacted] has been mentioned quite a number of times this week.

[redacted]
12/17/98 12:01 PM
To: [redacted]
cc:
Subject: AP [redacted]

Hello, I thought you might like an electronic copy of the new AP. Like? Well, anyway, will need to be familiar with....
Merry Christmas
---------- Forwarded by [redacted] on 12/17/98 02:04 PM ----------

[redacted]
12/17/98 11:05 AM
To: [redacted]
cc:
Subject: AP [redacted]

Per your request below is the electronic version of AP-[redacted] as it was approved.

[redacted]
---------- Forwarded by [redacted] on 12/17/98 10:04 AM ----------

[redacted]
12/08/98 04:18 PM
To: [redacted]
cc: [redacted]
Subject: AP [redacted]

They restored our files - so here it is.

Attachment: [redacted]

[redacted]

[redacted]

From: CN=[redacted]
PostedDate: 03/26/1999 01:59:05 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Status of LADS phase 1 calc. report - USGS
Body:
Between you and me, I put my 6k effort in months ago. My work gets charged to [redacted] and [redacted] This is where we invested our time and energy in promoting, planning, and actually doing the work. I'll admit that I have not devoted a full-time effort towards LADS. I've been working on the daily climate data-base, the new future climate simulations, the regional modeling, and the backlog of reports. Yes the LADS work is now behind schedule but so is everything else because I'm the only one doing this work, and I'll be damned if I drop everything else and work on nothing but LADS. I'd be very happy to just hand the work over to someone else at this point. It seems I do not have this option, thus all I can say is that the work will get done, but not by sacraficing everything else that's going on. I do not need to be developing M&O hoop jumping skills. The skills I am interested in developing are ones that will benefit the [redacted] district and our careers.
I'm not directing this at you. This is just to let you know where I stand at this point in time.
I guess this is another one of those memos that need to be destroyed.
[redacted]

---------- Forwarded by [redacted] 03/26/99 10:39 AM ----------
[redacted]
03/26/99 09:56 AM
To: [redacted]
cc: [redacted]
Subject: Status of LADS phase 1 calc. report - USGS

On Feb. 19 I requested the following steps from USGS staff, to complete the calculation report for LADS [redacted] and [redacted] (formerly designated DF [redacted] and [redacted]):
1. Train [redacted] and a checker to QAP [redacted]. Train [redacted] to YAP [redacted]. Also, train [redacted] to [redacted] for classification of software as "software routines."
2. Assign a DTN, and prepare a TDIF with input/output files (i.e. implement [redacted]). Typically this means that all input/output files, and code listings, are put on a CD-ROM. The originating organization should be NEPO, to avoid complications from USGS policies.
3. Designate all software used in this calculation as "software routines." This means the software does not have to be qualified. The calc. report should include source code listings, description of routines and how they fit together, exact specification of compiler and CPU (with S/N's), and a test case that exercises all the routines.
4. Revise [redacted] calc. report with [redacted], and software routine documentation. Note that the report should state whether all input data are "Q." If not, then the calculation results should be clearly indicated as [redacted]. Printout first draft ([redacted]. Originator signs calc. cover sheet. All pages will have the [redacted] number, including the correct Rev. number. Page numbering will comply with QAP [redacted].
6. Perform internal review of report. This can be informal, or as a NEPO review implementing QAP [redacted] Make revisions as required (a revised copy will have the next draft number, i.e. Rev. [redacted] etc.)
7. Printout checking draft (increment draft number using Rev. [redacted], Rev. [redacted], etc.). All pages will be marked "Checking Draft" in addition to the DI number, etc.
8. Perform checking function, coordinating with the checking group ([redacted]). A technically qualified checker (as determined by the Responsible Manager), who has received the checking indoctrination training and knows how to use the checklists, needs to be identified from within NEPO.
9. Revise document, backcheck per QAP [redacted], and get Originator and Checker signoffs on calc. cover page. Get Lead Engineer's signoff ([redacted]

[redacted]

[redacted]

10. Submit final document with cover sheet, all drafts, markups, and review paperwork, to your representative from Engineering Document Control. Request that they close out any TBVs on the original [redacted] Design Input Request, and prepare and submit the Record Package to RPC IAW [redacted]
I requested that steps 1-4 be completed by March 15th, and all steps by 4/15. Steps 1-4 are not complete, so this activity is behind schedule.
Please help expedite this effort.

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 03/26/1999 03:15:56 PM
SendTo: [redacted]
CopyTo: [redacted]
[redacted]
ReplyTo:
BlindCopyTo:
Subject: Status of LADS phase 1 calc. report - USGS
Body:

[redacted]

I will admit that I have not been conducting a 100% LADS effort because of a [redacted] level 4 due April 30th. The bare-bones needed to meet the level 4 milestone is now complete, but putting the actual data package together and conducting the necessary reviews for a developed data package submittal will be delayed if I go into a 100% LADS effort (which is needed to meet the schedule I've described below (red text)), which will also require full attention and up to a 100% effort over the next 2 weeks from [redacted] Given the other data-packages, scientific notebooks, and general QA issues that [redacted] is working on, I am now very concerned that meeting both the LADS schedule and the level 4 milestones due in the next month or two will be stretching our QA support too thin.

I had originally anticipated that the LADS work would ultimately require less work than what would be needed for a developed data data-package under USGS QA procedures. However, since this is largely a learning process for all of us, and because I have not done a very good job of estimating the amount of work needed to follow this activity through to completion (although I didn't do too bad in estimating the amount of work needed to just do the modeling which is the actual engineering calculation..... its all the follow-up work that has been under-estimated), the effort has grown substantially.

[redacted]

---------- Forwarded by [redacted] on 03/26/99 11:58 AM ----------

[redacted]
03/26/99 11:52 AM
To: [redacted]
cc: [redacted]
[redacted]

Subject: Status of LADS phase 1 calc. report - USGS

[redacted],

I have appended your memo to indicate the status of this work (see red text below).

[redacted]

---------- Forwarded by [redacted] on 03/26/99 10:59 AM ----------

[redacted]
03/26/99 09:56 AM
To: [redacted]
cc: [redacted]

Subject: Status of LADS phase 1 calc. report - USGS

[redacted]

[redacted]

On Feb. 19 I requested the following steps from USGS staff, to complete the calculation report for LADS [redacted] and [redacted] (formerly designated DF [redacted] and [redacted]):

1. Train [redacted] and a checker to QAP [redacted]. Train [redacted] to YAP [redacted] Also, train [redacted] to AP[redacted], for classification of software as "software routines." Done

2. Assign a DTN, and prepare a TDIF with input/output files (i.e. implement [redacted]). Typically this means that all input/output files, and code listings, are put on a CD-ROM. The originating organization should be NEPO, to avoid complications from USGS policies. I have been working on this, but will need help from QA to expedite. QA is waiting for the CD-ROM, and this will be completed on 3/30/99. Remainder should be complete by 4/2/99, unless there are hidden requirements for large input and output files (for example, these files are approximately 21 MB each ([redacted] format), and do not include headers. The files are fully explained in report. Inclusion of header lines will cause further delay)

3. Designate all software used in this calculation as "software routines." This means the software does not have to be qualified. The calc. report should include source code listings, description of routines and how they fit together, exact specification of compiler and CPU (with S/N's), and a test case that exercises all the routines. There has been progress here modifying the report to contain all necessary information and developing the test cases. This task is 50% completed. The work has gone slower than anticipated because there are several steps involved in this engineering calculation and thus a set of tests is needed. Remainder should be complete by 4/2/99.

4. Revise [redacted] calc. report with DTN, and software routine documentation. Note that the report should state whether all input data are "Q." If not, then the calculation results should be clearly indicated as "TBV." Report being modified to contain needed information. All input data has been identified as either Q or TBV. This should be complete 4/2/99

5. Printout first draft (Rev. [redacted]). Originator signs calc. cover sheet. All pages will have the DI number, including the correct Rev. number. Page numbering will comply with QAP [redacted]. This task is complete

6. Perform internal review of report. This can be informal, or as a NEPO review implementing QAP [redacted]. Make revisions as required (a revised copy will have the next draft number, i.e. Rev. [redacted] etc.). An informal review has been conducted by [redacted], and all suggested modifications (including those listed above) are being incorporated. This task is 75% complete. Need help from QA to expedite

7. Printout checking draft (increment draft number using Rev. [redacted], Rev. [redacted], etc.). All pages will be marked "Checking Draft" in addition to the DI number, etc. 0% complete. Need help from QA to expedite

8. Perform checking function, coordinating with the checking group [redacted]. A technically qualified checker (as determined by the Responsible Manager), who has received the checking indoctrination training and knows how to use the checklists, needs to be identified from within NEPO. [redacted] has volunteered to be the checker, and is waiting for us to provide the official version of the finished draft (Rev [redacted]). Both [redacted] and [redacted] have been providing valuable assistance in terms of interpreting procedures and providing examples throughout this process.

9. Revise document, backcheck per QAP [redacted], and get Originator and Checker signoffs on calc. cover page. Get Lead Engineer's signoff [redacted] or [redacted]). 0% complete

10. Submit final document with cover sheet, all drafts, markups, and review paperwork, to your representative from Engineering Document Control. Request that they close out any TBVs on the original [redacted] Design Input Request, and prepare and submit the Record Package to RPC IAW AP[redacted]. 0% complete. Will need help from QA or administrative staff to expedite

I requested that steps 1-4 be completed by March 15th, and all steps by 4/15. Steps 1-4 are not complete, so this activity is behind schedule. Developing test cases, organizing all input/output and software codes onto CD-ROM, and

[redacted]

completing required modifications to original document is taking longer than anticipated. I am planning to have steps 1-4 complete by 4/2/99. Although this phase is approximately 2 weeks behind schedule, there is still hope of meeting the 4/15 deadline for all steps. I am estimating a potential worst-case delay of 4/22/99.

Please help expedite this effort.

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 04/22/1999 06:27:50 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: QA
Body:

The QA bullshit grows deeper. I may need to say that I did everything by hand for the data package I am submitting that You and [redacted] reviewed. The program I wrote is not in the system and QA will be all over it like flies on &%#$. All references to [redacted] are being deleted.

Here's my question: When we go to start QA'ing the site-scale modeling work, will I get taken to the cleaners because I am not referencing either a tech procedure or a scientific notebook? In other words, would it be cost-effective to create a SN for the site-scale work and back-date the whole thing??

Can't wait to be far-far away from here!

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 04/22/1999 06:43:32 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: QA
Body:
What if you just download the raw files from [redacted] and say you used those? Do they need to know any more than that? You don't really need to do an analysis just say this is the data I used. Maybe that would work.

[redacted]

[redacted]
04/22/99 03:27 PM
To: [redacted]
cc: [redacted]
Subject: QA
The QA bullshit grows deeper. I may need to say that I did everything by hand for the data package I am submitting that You and [redacted] reviewed. The program I wrote is not in the system and QA will be all over it like flies on &%#$. All references to [redacted] are being deleted.
Here's my question: When we go to start QA'ing the site-scale modeling work, will I get taken to the cleaners because I am not referencing either a tech procedure or a scientific notebook? In other words, would it be cost-effective to create a SN for the site-scale work and back-date the whole thing??
Can't wait to be far-far away from here!

[redacted]

[redacted]N

[redacted]

From: [redacted]
PostedDate: 04/26/1999 02:40:15 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: Recharge Emergency
Body:
I have the [redacted] files here. Not sure I know about the power-point format.
Something will be sent within the next 15 minutes.
Did you get the overnight.
Also, much bullshit is getting generated by the developed data package you reviewed. The USGS has already far exceeded the cost benefit ratio for this product.

[redacted]
04/26/99 10:50 AM
To: [redacted]
cc: [redacted]
Subject: Re: Recharge Emergency
We're on it[redacted] I'll check the [redacted]t format before it gets sent.

[redacted]
I'm looking for [redacted] but haven't found him yet. Boy, you get around, the big wheels. Great.

[redacted] on 04/26/99 10:08:18 AM
To: [redacted]
cc:
Subject: Recharge Emergency

I need a digitial copy of your recharge map and your travel time to water table map in a format that can be dropped into [redacted]t, by 2 pm today. I have to present this to [redacted] and [redacted] tomorrow and I'm hitting them up for more cash for your stuff. If I don't have it I can't ask for $$$$$
Get My drift, COlleagues?
Luv ya
[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 11/12/1998 03:00:29 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Surface Temp Rise Events So Far
Body:
FYI: just some semi-interesting bullshit. [redacted] will likely spend 50K deciding what's important, than expect the actual work in the trenches to be done for free. Don't worry, I won't buy into that. I rather be spending the time on the [redacted] project anyway.
Oh yeah, you're not there! Hope everytning's going well with HDPs at SC pass.
---------- Forwarded by [redacted] on 11/12/98 11:56 AM ----------

[redacted]
11/10/98 04:59 PM
To: [redacted]
cc: [redacted]
Subject: Surface Temp Rise Events So Far
Hi,
I was going to try to hold another meeting next week in the interests of 'keeping the ball rolling', but the progress we have made to date doesn't seem to warrant dragging everyone out here, yet. However, I do want to keep you informed on what is going on.
On Monday [redacted] and myself met with [redacted] EIS Support to inform him of our position on the [redacted] issue. He was scheduled to meet with [redacted] DOE, for a weekly meeting Monday afternoon. He relayed our concerns about the traceability of the requirement and the fact that we may not actually be able to meet it with the current baseline AML of 83 (or 85) MTU/acre, based on the work done by [redacted] et al [redacted] in June 1997*. [redacted] response (to paraphrase): "If it is a problem for design, take it out." I think that we need to look hard at whether or not performance degrades due to temperature rise (through the complex phenomena of vegetation change, resulting infiltration change, and resulting temperature change), and possibly include a temperature requirement or something similar in the PDD, if appropriate. But the environmental concerns seem to go away at the top-level spec. We have to remember here that the public has been told that the temperature would not rise more than 2 deg C, through TRB meetings, and the sudden removal of the spec altogether may appear arbitrary to the casual observer. I don't know what to say to that...?
So the important work of determining the effect of temperature rise on vegetation [redacted], obtaining the LANL report [redacted], infiltration scenarios [redacted] and PA based on the infiltration spec [redacted] continues. At some point I need to figure out how to fold the surface uplift portion of the requirement into our analyses, i.e., how does the uplift contribute to changes in the underlying geological structure and perhaps increase the infiltration rate and/or the number of fast paths? I would appreciate it if you folks can tell me what the status of your action items are.
* - I have since verified these results: in a nutshell, an infiltration rate of 0.1 mm/year yields a temperature rise of 7 deg C at the top part of the [redacted] uff layer (Tcw), and an infiltration rate of 4.4 mm/yr yields an estimated temperature rise of 11 deg C.

[redacted]

P.S. I will be out of town starting Wednesday afternoon, and back on Monday, November 16th. you can contact me at [redacted] or [redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 04/26/1999 03:03:46 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: finding a technical reviewer
Body:
Examples of bullshit:
---------- Forwarded by [redacted] on 04/26/99 12:03 PM ----------

[redacted]

04/24/99 09:37 AM
To: [redacted]
cc: [redacted]
Subject: finding a technical reviewer
Is there some one like [redacted] that has been out of the Program long enough that we could justly say could give us an independent review? Any ideas? I understand from [redacted] that there is a simple [redacted] program and development of a climate model that is involved in this developed data. This will probably involve the new [redacted] and [redacted] AP which is not simple in itself. [redacted] needs some help here in getting a reviewer.
I'll be on [redacted] Monday. [redacted] was in on the discussion Friday and can provide additional details and follow-up. Thanks [redacted].

[redacted]
---------- Forwarded by [redacted] on 04/24/99 10:28 AM ----------

[redacted]
04/23/99 06:41 PM
To: [redacted]
cc: [redacted]
Subject: finding a technical reviewer

[redacted]
Contrary to what I previously thought, [redacted] and I are unable at this time to find a qualified non-YMPB technical reviewer for the developed data package [redacted] that was under discussion earlier today. Please let me know how best to proceed so that we can minimize delays. Also, please be aware that I have deliberately made this developed data package as simple and straight-forward as possible with the intention of generating a product that I fully believed could meet the original due date of 4/30/99. In other words, the level of "data development" is extremely simple and has been kept to a minimum.

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 04/23/1999 08:56:58 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: [redacted] help
Body:
I have to run this by you because I promised [redacted] and [redacted] that I would get back to them with a game plan next week:
[redacted] and [redacted] are pushing me to get the QA work in place for the products they need from me and are suggesting that they can help me out with software QA issues and all the grunt work required to just do the modeling runs so that needed products can be finished for the modelers to use. They realize that I am somewhat overloaded with this task so they are willing to provide us resources in terms of computing power and warm bodies doing QA and running the code. The catch for us is that the [redacted] code will be on [redacted] (they can dedicate [redacted] do the number crunching.... they will give us accounts so that we can [redacted] to these machines). I have been given a verbal promise that we will not lose control of the code, and the goal is to get the job done, not to take over our work. The [redacted] personnel would in essence be working for us, not the other way around.
I am thinking that If I want to remain viable team player on YMP (which may translate to continued funding), I need to show that we can get the job done and provide the modelers with the results they need. This is not going to happen if I rely solely on USGS YMP resources. For example, [redacted] can dedicate a person to do all of our software configuration management stuff and help us out with input parameter QA issues. This strategy sounds much more appealing to me now because I'm getting the impression that unlike USGS QA, the labs have the QA resources to actually get in there and do the work, instead of just creating more work for the [redacted] to do.
The other option would be to stall, and then when I'm in [redacted] I will just ignore all this, and we can let the site scale modeling go down the tubes. Dealing with this QA bullshit is really starting to make me sick.

[redacted]

[redacted]

From: [redacted]
PostedDate: 04/22/1999 07:05:17 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: QA
Body:
Not a bad idea. I am now considering it. Ideally, one would assume that the more information you provide QA, the better the QA. In reality, it seems that the opposite is true. At any rate, its a damn shame to be wasting time with this sort of thing.

[redacted]
04/22/99 03:43 PM
To: [redacted]
cc: [redacted]
Subject: Re: QA
What if you just download the raw files from [redacted] and say you used those? Do they need to know any more than that? You don't really need to do an analysis just say this is the data I used. Maybe that would work.

[redacted]

[redacted]
04/22/99 03:27 PM
To: [redacted]
cc: [redacted]
Subject: QA
The QA bullshit grows deeper. I may need to say that I did everything by hand for the data package I am submitting that You and [redacted] reviewed. The program I wrote is not in the system and QA will be all over it like flies on &%#$.
All references to [redacted] are being deleted.
Here's my question: When we go to start QA'ing the site-scale modeling work, will I get taken to the cleaners because I am not referencing either a tech procedure or a scientific notebook? In other words, would it be cost-effective to create a [redacted] for the site-scale work and back-date the whole thing??
Can't wait to be far-far away from here!
[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 11/15/1999 11:44:41 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Thanks for the cool refs
Body:
These references are pretty cool. Thanks for leaving them, it looks like usable stuff. Why can't I do this? What's my problem?
Well, maybe its that I'm just now getting the stupid data package off to the correct person. I re-sent it to [redacted] who responded from a laptop in [redacted] that I should just re-send it to [redacted], which I just did. Pretty soon the QA experts will want to know where the [redacted] and Area [redacted] precip files came from. Here they are: Don't look at the last 4 lines. Those lines are a mystery that I believe somehow relate to the work [redacted] was doing in entering the 1994 data. These lines are not used by [redacted] (we stop at 9/30/94). I've deleted the lines from the "official" QA version of the files (which do have headers). In the end I keep track of 2 sets of files, the ones that will keep QA happy and the ones that were actually used.
The files are the output from the [redacted] database that [redacted] and I had put together, which I still have but haven't looked at since 1996. So either the [redacted] data package has to look a lot like those files or I'm going to have start talking about the [redacted] database when the QA questions start. My guess is that we do not want to deal with the [redacted] database.
Here it is almost 2000, and I am still struggling with work done in 1995 and 1996.

[redacted]

P.S. Let's make QA read those references too. Better yet, let's set asside a day for watershed training.

[redacted]

[redacted]

From: [redacted]
PostedDate: 01/06/2000 07:01:30 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: AMR [redacted]
Body:

[redacted] called. Yes, this is really happening. [redacted] and [redacted] will help but it seems I am stuck going to [redacted] on the 26th [redacted] and [redacted] will also go for moral support). Responses to the [redacted] comments are due on the 21st.

There is, of course, no scientific notebook for this work. All work is in the form of electronic files. I can show auditors input, output, and program files, but it is not clear to me how to show documentation of work in progress. They may be expecting to see something that at least looks like a scientific notebook documenting work in progress. I can start making something up but then the [redacted] projects will need to go on hold.

If I continue placing [redacted] tasks as 1st priority for January, I will be ill prepared for the audit, and will likely get hammered. That's fine by me. I am far more concerned about the [redacted] projects than I am about the [redacted]. But [redacted] will be rather unhappy, and I will need help trying to figure out a good excuse why 100% of my time did not go into the audit without revealing the [redacted] projects.

I am open for suggestions.

[redacted]
01/06/2000 11:21 AM
To: [redacted]
cc:

Subject: [redacted]

---------- Forwarded by [redacted] on 01/06/2000 11:21 AM ----------

[redacted]
01/06/2000 10:25 AM
To: [redacted], [redacted]
cc:

Subject: [redacted]

FYI.
---------- Forwarded by [redacted] on 01/06/2000 10:25 AM ----------

[redacted]
01/05/2000 09:52 AM
To: [redacted]
cc:

Subject: [redacted]

---------- Forwarded by [redacted] on 01/05/2000 09:57 AM ----------

[redacted]
01/05/2000 08:56 AM
To: [redacted]
cc: [redacted]

Subject: [redacted]

The audit team has selected [redacted]" which is being

[redacted]

developed by USGS, as the fourth AMR to be evaluated replacing the AMR Analysis of Geochemistry Data. We need a copy of the latest revision immediately. When is the earliest you can get me a copy?

We will schedule the interviews with the originator of this AMR for Wednesday, Jan. 26. Please make arrangements for the appropriate USGS personnel to be at [redacted] on that day. For records, they will need as a minimum their Scientific Notebooks and the check/review documents. If different colors were used for the check/review comments, we will need to see colored copies or the originals for this and all the AMRs. We will notify you of additional records will need to see for the [redacted] AMR that will need to be available. We will try to keep the number of documents that USGS will need to bring to a minimum.

[redacted]

[redacted]

From: [redacted]
PostedDate: 01/13/2000 02:16:17 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: test
Body:
[redacted],
I have been having major networking headaches. There are several reasons for this; 1. The USGS is converting over to LOTUS Notes in the [redacted] district and this seems to have impacted the routing of my email, even though I am connecting directly to YMP Lotus Notes [redacted]. 2. My computer doesn't even see my network card anymore (I am using [redacted] computer right now). So when I fix problem #2, I can start attacking problem #1.
I have identified 4 potential mean monsoon climate analog sites and have been running the test simulations but did not finalize my selection yet. This has all gone slower than I thought because I have been "ordered" to deal with software QA and other QA issues because of this upcoming AMR audit. Also, the LBNL technical reviews hammered the AMR (these deal with the physical processes being represented by the model), and I haven't finished responding to these yet. These are all top priorities which unfortunately have once again gotten in the way of work I was trying to do for the uncertainty analysis. On the other hand, providing a sound defense of the net infiltration AMR ultimately benefits the uncertainty analysis AMR as well.
Thanks again for the review you provided
I did get my [redacted] password for the [redacted] Alphas.
[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 02/17/2000 07:14:48 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: finally the darn coordinates
Body:
I finally took the time to process your request. This required the use of [redacted] to look at the corners of the [redacted], then a coordinate transformation using [redacted]. Here are the results:
my picks using [redacted]
results obtained from [redacted]
Please do not tell anyone how this was done because then we will need to get this whole thing through software QA!
[redacted]

Attachment: [redacted]
Attachment: [redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 01/04/1999 02:27:49 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: I'm buried
Body:
I'm going to get hit real hard next few months by [redacted] schedule. I smelled some Fy00 funding so I let myself get pulled in, but this is going to be a real 3-ring circus. In some ways I feel like I've gotten myself into a corner by trying to champion the site-scale infiltration modeling. What I really want to do, (and I've known this for a few months now), is to wrap up the site-scale modeling and move on to a longer term plan.

---------- Forwarded by [redacted] on 01/04/99 11:12 AM

[redacted] on 12/31/98 09:13:37 AM
To: [redacted]
cc: [redacted]
Subject:

[redacted]
I would like to obtain an electronic output file from [redacted] soon so I can start writing a procedure to transfer to a file for sensitivity/uncertainty analyses.
--enjoy your holiday.
never mind the first attachment, these are the work plan document drafts.
[redacted]
- [redacted]
- [redacted]
- [redacted]

Attachment: [redacted]
Attachment: [redacted]
Attachment: [redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 03/07/2000 11:09:00 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: developed daily precip record
Body:
believe it or not, this file is now 3.5 years old, but it is what was used. This developed record stops on day 274, 1995. The only real good thing about this file is we seem to be very close to getting it into the TDMS (the data was developed in a [redacted] turned to [redacted] worksheet that may now be required to go through qualification as a software routine, so things have yet again stalled). Someday I hope to have the time to update this to include an improved pre-1987 interpolation and all the new data after 1995, which includes some interesting events..... back to QA.
P.S. Hope this email doesn't trigger a [redacted] input request. I'll probably get fired.

Attachment: [redacted]

[redacted]

From: [redacted]
PostedDate: 03/09/2000 10:39:31 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: [redacted]
Body:

[redacted],
[redacted] has a user option which when set to 0 the vegtypes in the file [redacted] (created by the damn routine [redacted]) are ignored and a veg-cover term of 30 is just assumed. The real stupid thing is that this value is never used because the veg cover stuff (root-zone parameters) all get defined in the control file. The veg-type and veg-cover columns are just dummy place holders that are not even used by [redacted] (remember all those great ideas about correlating something, anything, to vegetation....). But because [redacted] is where the bedrock ks is adjusted I have to drag the routine into the AMR. Damn it!

The main stupid thing is that as a 1st step I ran [redacted] with the user option set 2 to create [redacted] from [redacted], the output from [redacted]. This setting causes a veg cover estimate to be made based on [redacted], which are the vegtypes defined for the regional model (data from [redacted] and [redacted]). I was desperately trying to bring vegetation into the picture (still wasn't getting what I needed from the bugs and bunny crowd) but it didn't match up as well as I had hoped, I ran out of time, and it fizzled.

Now here is the majorly stupid part. To create [redacted], which is used as input to [redacted], I re-ran [redacted] using [redacted] as input and set the option to 0. So the regional vegtypes made it into all the watershed files that were used in the AMR. Now I can't just re-write the routine to leave out [redacted] because the output will never match what ended up becoming the watershed files. Had I re-run [redacted] using [redacted], I could now re-write the code in 5 minutes, get rid of [redacted] all together, and all would be cool.

So I would like to keep [redacted] as is, tell the story just as it happened, and than explain that we don't have to trace [redacted] because it was not used (we cannot bring [redacted] into the picture because then we have to deal with the input file which is the geospatial input file for the [redacted] region!). In fact we can just not even talk about the vegtype and vegcover stuff and just say those are dummy place holders that are never used so they don't need to be traced.

On second thought...do whatever you want. At this point I cannot re-produce the blocking ridge numbers using [redacted] and I have yet to re-visit the elevation stuff [redacted] was finding and who knows what will happen if we tried to run [redacted] on any of the source data going into the [redacted]. There is a bug in the top layer of the cascading bucket model, the soil ks conversion is off by a factor of 10, and even if I can re-produce the blocking ridges they're still wrong. Then there are those strange non-integer values that I saw for the 1st time in the Day and others input file during my testing of [redacted]. What is rock-type 1.33??? Oh yeah, the NTS data..... Jesus! I'm going nuts again! I'm going home now!

[redacted]

[redacted]

From: [redacted]
PostedDate: 03/30/2000 06:48:01 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Installations
Body:
[redacted],
The programs, of course, are all already installed otherwise the AMR would not exist. I don't have a clue when these programs were installed. So I've made up the dates and names (see red edits below). This is as good as its going to get. If they need more proof I will be happy to make up more stuff, as long as its not a video recording of the software being installed.
[redacted]
---------- Forwarded by [redacted] on 03/30/2000 03:39 PM ----------
[redacted]
03/29/2000 03:13 PM
To: [redacted]
cc: [redacted]
bcc:
Subject: Installations
I'm trying to follow-up on this request, but I need your help. Please respond back to me, asap, with the appropriate answers to the questions [redacted] is seeking.....thanks.
.
---------- Forwarded by [redacted] on 03/29/2000 03:08 ----------
[redacted]
03/29/2000 01:52 PM
To: [redacted]
cc: [redacted]
Subject: Installations
Good Afternoon [redacted]:
I am following up on our conversation today about the installations I have pending.
The installations are for Unqualified Software Codes under section [redacted] of AP[redacted]
[redacted] (1/1/1998)
[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 04/04/1999 12:03:31 AM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Precipitation estimates [redacted]
Body:

Here's my perspective:

Have you looked at the latest EOS? The article on nuke waste and Yucca Mt. states that the amount of water that will be contacting waste canisters is still the key issue for repository performance. The primary factor controlling flux thru the [redacted] is the infiltration rate. Some nights I have a hard time going to sleep because I realize the importance of trying to get the right answer, and I know how many serious unknowns are still out there, and how many quick fixes are still holding things together. I'm just trying the best I can with 3 equations and 15 unknowns. It seems so odd that we've had to push so hard just to get even a little support for this work, and at the same time we end up being the ones most responsible for whether the [redacted] predictions are right or wrong. I'm looking forward to putting the YMP nonsense far behind me.

I ran you're sublimation model and the entire snowpack sublimated. I have a 3rd model now which just uses a lower percentage of [redacted]. Sublimation using this model comes to about 20% of the total annual snow fall, but the term includes sublimation above freezing, which thus includes evaporation from the snow pack, in addition to melting. I found out our [redacted] calculation goes negative when air temp drops below about -20 deg C, which happens once in while using the [redacted] climate, so this just gets set to zero for now. It causes [redacted] to go from about 805 mm/year to 805.5 mm/year, so this was not a significant problem.

I'm driving out to [redacted] I'm bringing the lap-top and lots of [redacted] disks. I need to start a number of models running on the [redacted] [redacted] Alpha. I plan to work Tues - Thurs at the [redacted] office, then take Friday off [redacted] and drive back Saturday. [redacted]. The LADS stuff will fall a little further behind but that's too bad because the [redacted] has now become my highest priority.

We've contacted [redacted] and everything is already in full swing at this end. [redacted]

Happy Easter! I'll see everyone 1st thing Tuesday morning.

[redacted]
04/02/99 10:19 PM
To: [redacted]
cc:

Subject: Re: Precipitation estimates [redacted]

Here is a clue. [redacted] has clued in [redacted] as to why he thinks [redacted] is wrong. [redacted] knows [redacted] is smart. [redacted] doesn't want to be wrong (who does?). [redacted] is covering his ass. You might be the cover. You and I both know the estimates were too high. We talk about it at length. [redacted] is coming around. Science by peer pressure is dangerous but sometime it is necessary.

[redacted]

God, I love working on [redacted] and the [redacted].

[redacted]
04/02/99 03:19 PM
To: [redacted]

[redacted]

cc:

Subject: Precipitation estimates in VA

FYI:
I'm a little confused by the memo below. The table in VA indicating the MAP (mean annual precip) and MAT (mean annual temp) values for the predicted future climates were in place before the simulations that I was running at the time were even finished. By coincidence, the MAP values for the [redacted] and [redacted] simulations approximately matched (they turned out to be about 10 % higher) the super pluvial and long-term average MAP values (450 and 300 mm/year) listed by [redacted] and crowd, so we provided these results to PA because nothing else was available at the time, and everyone figured it would be better than nothing. Of course, everyone was warned that the results were preliminary, the MAT values were probably off, and changes in vegetation were not being accounted for, among other things.

To date, you, [redacted] (although he may have forgotten), probably [redacted], and me, are the only ones that know that the effective MAT value for both the [redacted] and the [redacted] simulations was about 5 deg. C.

Anyway, the memo below really bothers me because I believe that [redacted] had set the MAP and MAT values in VA before he even knew about the simulations we were doing, and now he's suggesting that his estimates were high because he knew that we wouldn't be handling temperature changes.

Now [redacted] has selected analog sites having MAP values in the 420 mm/year range for representing the upper bound climates (wettest potential climates) for both the "Monsoon" and "glacial transition" climate predictions. So should I now assume that later on [redacted] will suggest that these estimates are too high and that he was really just trying to compensate for the way we were modeling things? If this is the case then I would rather just be defining the future climate scenarios myself. My gut feeling is that these climates are a little too wet (although the lower bound climates seem much more reasonable), and I'm questioning the validity of a Monsoon climate kicking in at 600 years from now. It seems to me that the geography of moisture sources and blocking Mt. ranges would not allow for a [redacted] climate to occur at Yucca Mt.

[redacted]

---------- Forwarded by [redacted] on 04/02/99 02:47 PM

[redacted] on 04/02/99 09:36:11 AM
To: [redacted]
cc: [redacted]

Subject: Precipitation estimates in VA

[redacted], for the record, [redacted] and I have discussed a number of issues relating to climate estimates used in the VA and in general. I am in agreement with [redacted] that the mean annual precipitation estimates used in VA are too high. They were set high to compensate for VA not being able to deal with gains in effective moisture, due to the lower mean annual temperatures during the glacials. If [redacted] (as [redacted] and I discussed) ran the VA model with realistic average MAPs for the "superpluvial" and the "long term average" without accounting for lower MATs, the VA output, in my view, would have been seriously flawed, because both temperature and precipitation are key drivers of infiltration.

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 11/05/1999 01:23:16 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: PMR/AMR Issues
Body:
sounds great. I'm moving a computer up to 5th floor so my email isn't at one place while my phone is at another. I may have found a worksheet where you did the fracture density estimates. I keep finding bits and pieces of work we've done scattered around in boxes and across [redacted] disks. I'm going to make damn sure I stay organized from here on out.

[redacted]
11/05/99 08:52 AM
To: [redacted]
cc:
Subject: Re: PMR/AMR Issues
You know, we sat in that meeting on Wed. in [redacted] office and [redacted] repeatedly said that "we" made mistakes and "management" didn't figure things out in time. I lay this responsibility completely in his lap. I (we) have not been made aware of the scope of this AMR mess and my (our) TPO should've done so quite some time ago. Then it wouldn't have been shit on time (almost) because his people in the trenches would've understood the scope and schedule in enough time to focus resources properly. How can we deal with a problem when we don't know what it is? All we can do now is clean up the mess as well as we can and save his butt. Can we meet sometime today? How about lunch?

[redacted]

[redacted]

From: [redacted]
PostedDate: 01/26/1999 03:49:22 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Work plans
Body:
I'll talk to you about this more after I get back from SN training. I've re-scheduled my trip for Monday & Tuesday next week (arrive Sunday night).

[redacted]
01/26/99 12:25 PM
To: [redacted]
cc:
Subject: Re: Work plans
Just a caution. [redacted] doesn't know about [redacted] worksheet, at least not the one we're using. She disapproves of our methods and if she finds out she'll give us shit about it. What we do is take the money and balance out the hours to match. What she wants if for us to tell her how many hours it will take to do the work and only ask for that amount of money. If we have to much money for the FTE she want's us to give back the money. We don't agree but can't tell her that so we do an end run with the worksheet. She is a stickler for the rules (her rules) but I'm a stickler for the science. I need the leeway for bringing on additional FTE, when I need them. As things heat up so will demand for our time, especially with the [redacted]. You sound like you already have a plan on how to deal with it. That's good. I know you believe that we should only do what we're paid to do and you're right, we're not paid to write journal articles, give professional talks, or write proposals for future funding, I'm sure our managers will take care of us in the future, so I'll leave that decision and that belief to you. I have other things I need to do in life.

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 05/01/1998 06:03:01 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: qa shit
Body:

Attachment: [redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 02/23/1998 01:28:26 AM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: stuff
Body:
[redacted], you are just starting to wake up to what the hell is going on in the Yucca Mountain project. I can't teach it to you. I've learned, and that's why I'm in [redacted]. I would have liked to bring more people with me but nobody ever figured it out as much as I tried to tell you. I couldn't do it directly because you have to learn by experience. Once you learn, you learn. There is more to it than you think, that's why I'm still on the project. They won't get rid of me. You are on the verge of figuring this shit out. Good luck.
[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 08/23/1999 03:17:00 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: FW: infiltration maps
Body:

Just an example of the Hub-bub I was talking about. I spent the whole weekend working on the AMR. Probably I wiil need to cut way back on my original visions of what the final product should look like (of course in my mind the infiltration modeling should be its own PMR). Its too bad because I wanted to truly document how the infiltration modeling is done ([redacted] is actually counting on this so he can cut and paste into the new [redacted]). Its still shit on time isn't it.

[redacted]
08/23/99 09:05 AM
To: [redacted]

Subject: Re: FW: infiltration maps

[redacted]
Both the climate and infiltration AMRs are now late for checking by 10 days. As you know the PMR lead is held responsible for all such "bad" activities. Please provide me with a reasonable estimate of when I can expect to recieve these AMRs for LBNL checking.
Thanks
[redacted]

[redacted]
08/23/99 07:23 AM
To: [redacted]
cc: [redacted]

Subject: Re: FW: infiltration maps

I have an input request that I received last week - we'll work it this week. The requests need to go to the responsible manager for action.

[redacted]
08/20/99 01:55 AM
[redacted]
cc: [redacted]

Subject: Re: FW: infiltration maps

[redacted]
The catch-22 is that I've been busy trying to finish up the AMR and thus haven't up-dated myself on the status of the [redacted]. I recall discussions between myself and LBNL regarding a formal data transmittal, but I'm not sure if an [redacted] was called out (I'll need to double check my records) because the official data release date was 5/21/99 (check the file dates) and transpired as an official memorandum from [redacted] to [redacted]. If we need to retrofit this transmittal with [redacted] then we'll do it, but I've assumed the completion of the AMR has highest priority. I'm also assuming that until the AMR is complete the [redacted] can only be submitted as TBV.
Along these lines... there's been discussion of whether it is best to have a single encompassing DTN for all the FY99 net infiltration modeling results or separate DTNs for each of the 9 files distributed. We may need to just go with whatever is most efficient with QA resources, although there are advantages to having the separate DTNs for end users (this was my original intent), especially in terms of distinguishing between the modern climate and potential

[redacted]

future climate results.

[redacted] on 08/19/99 12:26:32 PM
To: [redacted]
cc: [redacted]

Subject: FW: infiltration maps

[redacted]

Haven't talked to you in a while. What's the status of your AMR? Will it provide a DTN for the infiltration maps that were given to LBNL? As [redacted] indicates below, it may be prudent for you to issue an [redacted] (Input Transmittal) to formally transmit the 9 maps (3 climates x 3 infiltration ranges) to LBNL. Otherwise, there is no formal traceability for the maps that they created and gave to us.

Let me know what you think.

--[redacted]

> -----Original Message-----
> From: [redacted]
> Sent: Thursday, August 19, 1999 12:33 PM
> To: [redacted]
> Subject: infiltration maps
>
>
>
> [redacted]
>
> Did you [redacted] submit an [redacted] to [redacted] to get the infiltration
> rate boundary conditions (3X3 cases)? If you did, I would like to just
> piggyback on that request to explain how I have the files, not from the
> TDMS. If you or [redacted] have not done this, maybe you should. The reason I
> ask, [redacted] was not happy with the way [redacted] and I got the infiltration
> data. He suggested that we submit a [redacted] to [redacted]. Let me know what you
> think.
>
>
> --[redacted]
>
>

[redacted]

[redacted]

From: [redacted]
PostedDate: 11/05/1999 01:33:32 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: PMR/AMR Issues
Body:

another reply to this: I've shunned the whole PVAR process so I can be blamed for that. All I want to do is get a report out that documents what we've done and what we've learned. I just wish that [redacted] was a little closer to the work we do because I think then he would have a better feel of what resources will be required for a given set of [redacted] procedures. Probably this just isn't possible at his level. But at Wednesday's afternoon meeting I sure had a sense that upper management, [redacted] and the [redacted] were on one planet, while the USGS folks in the trenches were on another.

[redacted]

11/05/99 08:52 AM
To: [redacted]
cc:

Subject: Re: PMR/AMR Issues

You know, we sat in that meeting on Wed. in [redacted] office and [redacted] repeatedly said that "we" made mistakes and "management" didn't figure things out in time. I lay this responsibility completely in his lap. I (we) have not been made aware of the scope of this AMR mess and my (our) TPO should've done so quite some time ago. Then it wouldn't have been shit on time (almost) because his people in the trenches would've understood the scope and schedule in enough time to focus resources properly. How can we deal with a problem when we don't know what it is? All we can do now is clean up the mess as well as we can and save his butt. Can we meet sometime today? How about lunch?

[redacted]

[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 01/27/1998 05:03:46 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Question About [redacted] for [redacted]: synoptic-scale weather patterns
Body: Do the management review as scheduled then spend whatever it takes to address [redacted] question. You have to suck it in on this one and think about sunny [redacted] where the shit does not run deep.
[redacted]

[redacted]

[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 02/23/1998 01:28:26 AM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: stuff
Body: [redacted] you are just starting to wake up to what the hell is going on in the Yucca Mountain project. I can't teach it to you. I've learned, and that's why I'm in [redacted]. I would have liked to bring more people with me but nobody ever figured it out as much as I tried to tell you. I couldn't do it directly because you have to learn by experience. Once you learn, you learn. There is more to it than you think, that's why I'm still on the project. They won't get rid of me. You are on the verge of figuring this shit out. Good luck.

[redacted]

[redacted]

[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 02/23/1998 12:03:56 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: stuff
Body: My response.
---------- Forwarded by [redacted] on 02/23/98 09:10 AM

[redacted]
02/22/98 10:28 PM
To: [redacted]
cc:
Subject: Re: stuff

[redacted], you are just starting to wake up to what the hell is going on in the Yucca Mountain project. I can't teach it to you. I've learned, and that's why I'm in California. I would have liked to bring more people with me but nobody ever figured it out as much as I tried to tell you. I couldn't do it directly because you have to learn by experience. Once you learn, you learn. There is more to it than you think, that's why I'm still on the project. They won't get rid of me. You are on the verge of figuring this shit out. Good luck.

[redacted]

[redacted]

[redacted]

SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: Notes from April 4 Denver staff meeting
Body:
We have to kick his ass. He pisses me off some times. He took over the conceptual model report ([redacted]), then took of [redacted] and made the report [redacted] and [redacted] was also pissed). He's wrong and we have to show that. Even the old tritium data shows that. I wonder who will be the reviewer.

[redacted]

04/05/2000 03:47 PM
To: [redacted]
cc:
Subject: Notes from April 4 Denver staff meeting
Please read very last line of meeting notes. I have stopped working on the AMR and I am now just working on reports: 1. the unfinished [redacted] report, 2. regional [redacted] model for [redacted], 3. re-calibration of watershed model in [redacted] using both streamflow and neutron logging data (and a fixed model). [redacted] and I have been working on the precip-input problem today. Eventually this will lead to another report. Add all the [redacted] tree stuff and there is no time to do AMR work anymore. If [redacted] can do this sort of thing why can't we?
Oh yeah, and I refuse to take any further training until I take the training course "How to publish reports in the USGS". After all, isn't that the bottom line. What good is QA if there is no data or analysis to QA? Do we just QA the QA?
Ok I'll shut up now.
---------- Forwarded by [redacted] ----------

[redacted]

04/05/2000 01:14 PM
To: [redacted]

[redacted]

cc:
Subject: Notes from [redacted] staff meeting
Some of you have already received this, but I wanted all of [redacted] team members to have this meeting summary provided by [redacted]. Thanks [redacted]
---------- Forwarded by [redacted] PM ----------

[redacted] opened the meeting and discussed the following items:

1) [redacted] Office Safety - please follow the suggestions after the office safety review/inspection. Fix things up, get GSA to take care of their responsibilities.

2) [redacted] (DOE) visited [redacted] during the 'USGS talk to the customer meeting' and made three major comments:
a) DOE thanks the USGS for their YM work especially the multidiscipline work
b) DOE wants to see the report approval process speeded up
c) The SR will need USGS support at both the YMP level and bureau level, especially through the review process

3) Organizational Chart - Being developed and will be distributed

[redacted]

electronically. Two versions - official one with just USGS personnel and an unofficial one with contractors on it. [redacted] went through all the units in YMP. The [redacted] Operations will be under [redacted]. [redacted] will still have technical interaction and direction through [redacted] and [redacted] teams. [redacted] folks will be tied through [redacted] operations because of their HRF ties.

4) Funding
a) There is more uncertainty this week than last week. Still working on being funded as a line item. [redacted] has had recent meetings with [redacted] and staff.
b) DOE is having some sticker shock for the price of the program.
c) USGS interpretative studies need Director's approval prior to publication. Yucca Mt internal reports without Director's approval will not receive Bureau support. To be successful in the LA arena approved interpretative reports will be needed. Funding will be needed to accomplish this.
d) Latest version of the draft RFP for the [redacted] contract includes the USGS with the National Labs under the contractor. [redacted] is checking into this.

5) QA
a) [redacted] group is coming out with a summary of changes to technical procedures. Please review.
b) While doing your work use the development plan, procedures, classroom/workshops. Ask for help if needed.
c) Questions/answers/comment period generated a lot of concern about the QA system which seems to be a moving target and have different answers depending on who you ask. [redacted] understands the concerns, let's work together to accomplish things, the USGS is paid to work under a QA program - let's get it done.

Other folks giving presentations at the meeting:

[redacted] - A USGS/YMP web site is being planned. It may be designed similar to a USGS District site with public and internal pages. Possible things to be included: technical procedures, approved and published reports and abstracts, photos, and whatever else. Get with [redacted] if you have input. He was reminded about the difficulties of LV staff and [redacted] visitors having access to USGS internal pages from LV.

[redacted] - Demonstrated the GIS based database for hydrochemistry and isotope data. Overheads and maps can be made. The data can be queried and only selected subsets looked at. Need arcview or someother GIS product. They are trying to get a student to help finish data base. Contact [redacted] if you need more info.

[redacted] - Discussed the report he is lead author on about recharge in [redacted] during 1998. Thermal and pressure data from the UZ holes and modeling support the interpretation recharge occurred after streamflow in 1998. Report is in the review process. Contact [redacted] for more details.

[redacted]

From: [redacted]
PostedDate: 01/20/1999 03:05:40 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Level 4 milestones
Body:
I'm going to need serious QA help. My fear is that [redacted] about to be overloaded. We could actually use 2 [redacted]. I'm calling [redacted] now to let her know I will need her to do the software review.
Much of this is up to you.... I do not have a clear picture of where the holes are in our group. When I come to [redacted] I will show [redacted] how to run the models, but I'm not sure how much time he has. He could be a tremendous help running combined streamflow-neutron log calibrations.
For 178k, I'd like to try to get the 1:24000 Day et al geology and the [redacted] veg map into the model. This will require GIS support. I'm starting to realize ARCVIEW limitations, so we may need [redacted] help.
I also need a checker for the NLP [redacted] document. [redacted] volunteered before but we may want someone else (someone in our group) to do this.
I need to make sure I have the time to write the coupled [redacted] flow model reports (both site and regional scales), and finalize a recharge map for [redacted].
The problem now, as you warned, is that if our group is already maxed out, which it may well be, where do we go within the USGS for resources?. The resources we need are about 1 FTE worth according to the following (I would be covering the rest of the work, about .6 FTE):
0.2 FTE Hydrologist to define snow cover module, refine cascading bucket, and help re-incorporate the [redacted] eq. option.
0.3 FTE Hydro tech to run models, pre- and post-processing programs
0.3 FTE Qa specialist
0.2 FTE some cobination of the following :
Fortran programmers
GIS specialists
computer modelers
This is where you called.....
OK, so let me try to clarify how I feel:
1. Yes, I should take advantage of the resources [redacted] has to offer in terms of keeping on top of budgets, accounts, and dealings with [redacted]. [redacted] and [redacted] do a great job with this, and it frees me up to concentrate on doing the modeling and writing. I will make sure everyone is in the loop, and I will keep [redacted] and [redacted] and you fully informed.
2. This has to work both ways. I need to be informed of [redacted] interactions with [redacted] and [redacted]. I've let myself fall out of the budget and planning loops before, and I'm trying not to let that happen again. This is mostly my own fault (for example, I should have helped you and [redacted] out with FY2000 planning last week, but I had failed to realize that that's what you were doing).
3. My concern stems from the perspective that those in charge of funds and accounts ultimately have control of the projects and the work. I am trying to increase my level of responsibility, not decrease it. This is something I feel I need to do as part of my career development. I may be way off base here, but I have this perspective that if I'm not carefull, eventually people may start thinking by default that [redacted] is in charge of [redacted] modeling, and I will be getting bypassed. So I guess this really boils down to a matter of power, control, and advancing from point A to point B. I'm not trying to be a pain in the ass here, but from what I've seen, everyone has to cover their own asses, while at the same time work hard at being team players and making sure the job gets done.

4. I don't see any problems here at this point or in the near future. Please feel free to openly critisize (or completely ignore my perspective.... its not as serious as it sounds). I know this is all stuff you don't really need to hear, but I wanted to provide some insight to our phone conversation.

[redacted]
01/20/99 08:57 AM
To: [redacted]
cc:
Subject: Re: Level 4 milestones

[redacted]

Ok [redacted], now you've got the money. Now what do you do?

[redacted] ---------- Forwarded by [redacted]

[redacted]
01/20/99 06:35 AM
To: [redacted]
cc:
Subject: Re: Level 4 milestones

Not only do we have money, but we have money in two places!!!!!! [redacted] and [redacted] - the correct place is the [redacted] "close out" money. The [redacted] will be used for the various PA workshops etc. [redacted] Ho was prepared for us to use the [redacted] money if necessary - I made the commitment last fall to use close out money for the [redacted] work as it is indeed, a final effort, or close out. The plans absolutely need to be in the system now before the project puts in place a new CR - the existing one only baselined what the [redacted] had in place at the end of last Sept. and that was only a stop-gap.

The money is there- (will be there) - and [redacted] should proceed without any hesitation. Any worries about whether or not the money shows up etc. are what I get paid for - To be clear, [redacted] also needs to finish the LADS exercise by completing the checking per the M&O procedure.

[redacted]
01/19/99 05:59 PM
To: [redacted]
cc:
Subject: Re: Level 4 milestones

In reference to your response to [redacted], [redacted] said we do not have any money at this time and if we don't have a plan in place we won't have any money. Who do I believe (Okay, I'll believe you but what the heck is going on?). We have sent a plan for the [redacted] last week but we don't know what happened. This memo implies that there is not a CR or other method of making these funds available. That is why we are so darned confused about this budget, and thus [redacted] confusion.

[redacted] ---------- Forwarded by [redacted] on 01/19/99 05:55 PM

[redacted]

[redacted]

From: [redacted]
PostedDate: 04/28/1999 04:12:53 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: USGS Participation in [redacted]
Body:
I feel bad that you had to spend time responding to this sort of thing, but thanks for sharing it with me. I'm sure the public would love to see how YMP spends resources trying to figure out whether or not the mountain is safe. Did you get the overnight? I'm still making new slides. I'll have to bring these with me. I'm arriving at 10:15 pm tomorrow at the LA airport. I can get you the slides as soon as I arrive at the hotel (I'm staying at the place suggested in the [redacted] emails) or at say, 6:30 am before continental breakfast. Let me know if you need me to explain any of the slides. I've found the ENSO stuff but these were 1996 black and white images so I'm redoing these in color. Also, I still need to get the title slides developed, so this is happening tomorrow. The 4-hour turn-around at [redacted] Photographic is saving my ass.

[redacted]

[redacted]

04/28/99 11:09 AM
To: [redacted]
cc: [redacted]
Subject: Re: USGS Participation in [redacted]
I'm confused. I seem to have three different deadlines for the same thing. I guess I'm out of date. What is a "[redacted]", what is a "[redacted]", what is "draft form", what (who) is in charge and why do I get requests for different things from different people that all seem to be related, if not the same thing? When do the "[redacted]" go into effect? When is the FY99 planning and reallocation of money to fund the "[redacted]" going to be finished? Are any milestones going to be delayed to meet new [redacted] requirements? Will the ICD's vanish, will the [redacted] originator vanish? Who is a PAO? What's going on? What's the April 20th deadline? I thought I was only late for the April 23rd deadline. I guess I just don't have the PMR concept embedded properly. Did I get anything right?
Just curious,

[redacted]

[redacted]

04/28/99 10:28 AM
To: [redacted]
cc: [redacted]
Subject: USGS Participation in AP3.10Qs
The schedule for [redacted] is being revised to place additional constraints on information handoffs. The completion dates and links by the climate model and infiltration model to the UZ model may need to be revised.
In the frenzy of reorganizing the FY99 replan I am concerned that the [redacted] model and [redacted] model PIs have not been kept up to date. The current plan (with dates supplied by ??) calls for the Climate [redacted] to be in draft form by April 20. The final report is scheduled to through checking review on

[redacted]

[redacted]

Author: [redacted]
Organization: [redacted]
From: [redacted]
PostedDate: 10/07/1999 12:35:09 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Late AMRs
Body: In our meeting yesterday, [redacted] and [redacted] indicated the following dates for arrival of the AMRs at [redacted] These are all rev 0A:

[redacted] Climate: [redacted] Oct. 12
[redacted] Infiltration [redacted]: Oct. 8
[redacted] Geochemistry: Oct. 7 (today)
[redacted] UZ/SZ Transport Prop. Oct 8

I KNOW YOU ARE WORKING HARD, BUT I MUST HAVE THEM ASAP. My ass is being hammered. I hope I quoted the right dates and that everyone one will finally deliver.

[redacted]

[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 06/02/1997 02:52:02 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: Charging Time
Body: I have the account as [redacted] Check with [redacted] to make sure that his number [redacted] is the correct one then go ahead and Charge. Charge your time to PISA for the [redacted] trip.

To: [redacted]
cc:
From: [redacted]
Date: 06/02/97 11:43:40 AM PDT
Subject: Charging Time

I did not know if you were aware of the following. If not, here is some extra money. Unless you tell me otherwise, I will charge my entire next pay-period (due this Wed.) to this account ([redacted].

To: [redacted]
cc:
From: [redacted]
Date: 05/29/97 11:20:30 AM
Subject: Charging Time

[redacted]

The mixup in account numbers that [redacted] and/or [redacted] talked with you about today reminded me that I've got 2 payperiods of your time budgeted for the work that you did for regional modeling this year. It doesn't look like you've charged any time for that work yet. Sometime this year, you can charge 160 hrs to account # [redacted] (which isn't a [redacted] acount but I've had to juggle people's time to buy some expensive software. It is one of the [redacted] modeling accounts.). Thanks.

[redacted]

[redacted]

[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 04/03/1998 11:09:18 AM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: 20K in [redacted]
Body: [redacted]
We need some additional computers in [redacted] and [redacted] and are adjusting the budget to cover them by charging some of [redacted] time to [redacted] I'll let you know what changes we have to make to work this all out. The work [redacted] is doing is a spin off from the work in [redacted] and [redacted].

[redacted]

04/03/98 07:11 AM
To: [redacted]
cc: [redacted]
Subject: Re: 20K in 11017

[redacted] - I already have [redacted] budgeted full time under other accounts [redacted]; and [redacted]. Has this been negotiated with [redacted]? I can only budget him for 2088 hours so I will need to reduce one of these other accounts by 440 hours. Thanks - [redacted]

[redacted]

04/02/98 03:31 PM
To: [redacted]
cc:
Subject: 20K in [redacted]

[redacted] had mentioned that you thought there was an underrun in [redacted]. There is not. We are going to cover 440 hours of [redacted] for work on that activity. At 34.33 per hour that comes to about 15000 bucks.
Call if you have any questions.

[redacted]

[redacted]

[redacted]

From: [redacted]
PostedDate: 11/18/1998 06:10:09 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: funding woes
Body:
FYI: another example of an apparent disconnect between [redacted] and [redacted]. What is your source in regards to the 1M provided to the USGS? If this is true then the funds seem to be getting funneled in the wrong direction.
---------- Forwarded by [redacted] on 11/18/98 03:06 PM
---------- [redacted]

11/18/98 01:19 PM
To: [redacted]
cc: [redacted]
Subject: Re: Discussion with [redacted]
As far as I know there is no funded milestone for December. The milestone we tried to get was not a milestone but an attempted to get the FY96 map in the TDMS. There is no funding. Perhap DOE should be honest with the NRC and tell them they are not funding an infiltration map this year.
[redacted]

[redacted]

11/18/98 11:39 AM
To: [redacted]
cc:
Subject: Discussion with [redacted]
FYI.....[redacted]
---------- Forwarded by [redacted]
---------- [redacted]

11/18/98 11:10 AM
To: [redacted]
cc: [redacted]
Subject: Discussion with [redacted]
---------- Forwarded by [redacted] on 11/18/98 11:14 AM
---------- [redacted]

To: [redacted]) on 11/18/98 10:51:09 AM
cc: [redacted]
Subject: Discussion with [redacted]

[redacted] --
[redacted] called me with some follow-up questions/comments to the telecon we had last week. Items of discussion were:

1. Some additional clarification about how we included effects of percolation variability on seepage, and why the adjustments applied at low fluxes were not also applied at high fluxes. (Answer is that it made no difference at higher fluxes, and I think that is stated in the TBD.)

2. He has some concerns about how the probabilistic sampling for seepage was done and effects of variability vs. uncertainty. I frankly did not really understand the point he was making and so was not able to make a very satisfactory reply. As best I could understand, I thought he was misunderstanding what we did, but as I think about it now, maybe he would prefer sampling our repository subregions independently rather than having them tied together. (It seems like he was concerned that we didn't have enough spatial variability in seepage.)

[redacted]

3. Lastly, he had some questions/concerns about the probability distribution for surface infiltration (the weighting factors for the three infiltration cases). I agreed with him that we need a better basis for the distribution. He mentioned that he thinks the probability distribution is probably more of an exponential shape. He brought up the issue of bromus (sp?) grass, and said that he is getting more and more concerned about it. He said that it probably would not have much effect over the repository because the soil is mostly shallow there, but it might have more effect on the SZ flow -- a distributed rechrge over the area, possibly even a rise in the water table. And finally, he mentioned that the VA said something about new YMP infiltration work for 1998 and was curious about it. I told him that there is an infiltration deliverable due in December.

-- [redacted]

[redacted]

[redacted]

From: CN[redacted]
PostedDate: 11/19/1998 10:14:39 PM
SendTo: [redacted]
CopyTo: [redacted]
ReplyTo:
BlindCopyTo:
Subject: RE: QA'd models
Body:
[redacted]
The 96 model report has been re-submitted for USGS Director's approval. [redacted] has been the main force behind dealing with the latest round of editorial reviews and pushing the report forward. When Director's approval is granted, I am assuming the FY96 model will be in the TDMS, although we may be required to submit additional supporting information (we are still in the process of finding this out). There is also a chance that the report will not be approved, and will require additional work and/or modifications. Unfortunately , the process of Director's approval is largely beyond our control. Past experience has shown that it is always best to assume additional work and/or modifications will be needed. At any rate we are still hoping for end of December on this, but cannot make any guarantees. If additional QA work is needed, it may become a problem because at present we are not in a good position to do this. I'd say a 50% probability of completion.
The 96 model includes only the current climate base-case net infiltration map, and a wet and dry year current climate simulation. We still need until April to get the 97 future climate 100-year simulations into the TDMS. Again, no guarantees, especially in light of major uncertainties that continue to exist, and thus I can only give a 50% probability of completion.
Bottom line is, our position for making any FY99 commitments at all is still poor to nonexistent.
[redacted]
To: [redacted]
cc:
Subject: RE: funding woes

[redacted]
What is the status of the FY96 model being submitted to the TDMS? I thought you said that the FY96 infiltration maps could probably be submitted to the TDMS by December.
--[redacted]
-----Original Message-----
From: [redacted]
Sent: Wednesday, November 18, 1998 4:10 PM
To: [redacted]
Subject: Re: funding woes
FYI: another example of an apparent disconnect between 1.2.5 and 1.2.3. What is your source in regards to the 1M provided to the USGS? If this is true then the funds seem to be getting funneled in the wrong direction.
---------- Forwarded by [redacted] on 11/18/98 03:06 PM ----------

[redacted]
11/18/98 01:19 PM
To: [redacted]
cc: [redacted]
Subject: Re: Discussion with [redacted] (Document link not converted)

As far as I know there is no funded milestone for December. The milestone we tried to get was not a milestone but an attempted to get the FY96 map in the TDMS. There is no funding. Perhap DOE should be honest with the NRC and tell them they are not funding an infiltration map this year.

[redacted]

[redacted]
11/18/98 11:39 AM

[redacted]

To: [redacted]
cc:
Subject: Discussion with [redacted]

FYI.....[redacted].

---------- Forwarded by [redacted]
11:38 AM ----------

[redacted]
11/18/98 11:10 AM

To: [redacted]
cc: [redacted]
Subject: Discussion with [redacted]

---------- Forwarded by [redacted]
AM ----------

[redacted] on 11/18/98 10:51:09 AM

To: [redacted]
cc: [redacted]
Subject: Discussion with [redacted]

[redacted]--

[redacted] called me with some follow-up questions/comments to the telecon we had last week. Items of discussion were:

1. Some additional clarification about how we included effects of percolation variability on seepage, and why the adjustments applied at low fluxes were not also applied at high fluxes. (Answer is that it made no difference at higher fluxes, and I think that is stated in the TBD.)

2. He has some concerns about how the probabilistic sampling for seepage was done and effects of variability vs. uncertainty. I frankly did not really understand the point he was making and so was not able to make a very satisfactory reply. As best I could understand, I thought he was misunderstanding what we did, but as I think about it now, maybe he would prefer sampling our repository subregions independently rather than having them tied together. (It seems like he was concerned that we didn't have enough spatial variability in seepage.)

3. Lastly, he had some questions/concerns about the probability distribution for surface infiltration (the weighting factors for the three infiltration cases). I agreed with him that we need a better basis for the distribution. He mentioned that he thinks the probability distribution is probably more of an exponential shape. He brought up the issue of bromus (sp?) grass, and said that he is getting more and more concerned about it. He said that

[redacted]

it
probably would not have much effect over the repository because the soil is
mostly shallow there, but it might have more effect on the SZ flow -- a distributed rechrge over the area, possibly even a rise in the water table.
And finally, he mentioned that the VA said something about new YMP infiltration work for 1998 and was curious about it. I told him that there
is an infiltration deliverable due in December.

--[redacted]

[redacted]

[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 06/17/1998 04:20:27 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: mod to [redacted]
Body: I wasn't suggesting you ask for less money. I am suggesting we do the best work we can, get all the money we can, and commit to the least amount of product we can. The money is not taking money from another source. That money is extra. There may be an overriding goal by management to cut our staff. If that's the case then the modeling money will help lower the expectations for underground work. It may be in somebody's mind that there is not enough money for the GS people in all project but enough for all our (my) GS and the PWT people. If that happens then "they" will make us get rid of PWT people, take our money and give it to other GS people (how do [redacted] and [redacted] get there money anyway?). I'm actually more paranoid than you. When you talk about not being over committed I'm not sure you are accounting for perhaps 0.5 FTE here in [redacted] next year. Also don't forget [redacted] has you funded (if his money comes through) for 0.5 FTE next years. So right now you and I, if all the money comes through, have about 4 FTE for modeling. What modeling do you really thing [redacted] and [redacted] could do? [redacted] has been responsible for the 40 Mile Wash study for years and hasn't modeled anything. What modeling has [redacted] (either [redacted]) ever done? I've worked with everybody in the group and as far as getting a good model you and I are it. I've work with [redacted] and his perspective is more difficult to deal with for me. Ground truth, that's what we'll need next year, especially when we do the entire Mojave (654,000,000 grid cells). On getting papers out you only made 16 pages in over a week, that was just review. You're tract record on getting out papers has me more nervous. I know you're trying to cover the 3 basics but promising then is another question. Check your track record on papers and then try to reassure me you can do the modeling, turn in data, finish the QA, finish two USGS WRIR's that you've started, help write the Invited paper, finish the Conceptual model paper (16 pages out of 59! so far) and then promise a Journal article. I know it's stressful (I know stress). You can also do more than is promised but you can never do less. We can talk more later.
[redacted]

[redacted]
06/17/98 11:52 AM
To: [redacted]
cc:
Subject: Re: mod to [redacted]
Thats OK. I was waiting for input on this. Basically, I only have 2 goals: 1. To keep our modeling efforts going full swing so that we come out with a final product that we will be proud of and one that will be an important contribution to the project 2. Continue developing expertise and knowledge in this area (watershed scale unsaturated zone modeling) which will enable us to grow well beyond Yucca Mountain.
As for as committing FTEs, I guess my position these days is to get as much money as possible and then once that's close to being finalized (which I don't think is the case yet) we'll have the luxury of deciding whether we're getting too much money. As you know, I don't have all the information in front of me at the moment; whether this money cuts into underground work (I am assuming it doesn't), who in the Survey is lacking funding at the moment (we could have [redacted] help us with GIS, I could have [redacted] and/or [redacted] help out with the modeling, ... I'm not sure about [redacted] at the moment)
I know what you're saying but I'm just trying to cover the 3 basics; funding, doing the work, publishing. In addition, I have a genuine concern that if we don't get funding for modeling, my funding will come from the undeground work, and then [redacted] will be trying to tell me what to do. I know he's been working hard with the budgets and he's doing a good job but I don't want him to have control over what I do.

[redacted]

Finally, I don't think we're as overcommitted in this as it may seem. We have a lot of irons in the fire and I've convinced myself that we are on the verge of putting out a series of slick, high profile products. Yeah I'm asking for more money than what might be needed given how all the modeling efforts are inter-related but I've had some bad experiences where it seems like I wasn't asking for enough money (the 50% cut last year comes to mind).

Did you get both overnights I sent (you should be getting a JAZ disk today).
How are your meetings going this week? I just had the huge [redacted] report
land in my lap for technical review. I could use the extra money to pay
someone else to do the modeling while I do the technical review.

[redacted]

[redacted]

From: CN=[redacted]
PostedDate: 12/24/1998 06:32:09 PM
SendTo: CN=[redacted]
CopyTo: CN=[redacted]
ReplyTo:
BlindCopyTo:
Subject: Re: account [redacted]
Body:

[redacted]

I don't understand this either. Here's what I know thus far:

1. The 176K [redacted] is for "close-out" of the infiltration modeling work. This work is still following the original work package that I put into the system more than 6 months ago (in response to a PA-USGS-DOE meeting in April or May 1998 on climate and infiltration issues), but which never received funding. I've charged 1 pay-period to this account, following my response to [redacted] request of work-plans for FY99 close-out funds. Currently I have no information as to the exact status of the [redacted] work package and its funding, although [redacted] has indicated to me to plan on doing as much infiltration modeling work as possible in FY99.

2. We notified PA about 5 months ago that 1. The FY99 infiltration modeling work package was not getting funded, 2. additional work was needed to get the new model results into the TDB, 3. the new requirements for data used by models required the data to be in the TDB (and the USGS requirement for placing model output into the TDB is that an interpretive report is needed to support the results.... I am supporting this requirement, but also support the use of the TBV status to allow PA modelers access to results under the imposed schedule), 4. Additional work was needed to incorporate the Day and others 1:24,000 scale geologic map (only the 1:6000 scale map was available in time for the FY98 model), a snow cover module, and a quantitative evaluation of model uncertainty to ensure that a fully defensible model was in place for LA & SR. A meeting was held in October to discuss these issues. Upper management was made aware of the issues, but from my perspective nothing had been resolved (I did not have an account to charge the work to).

3. The [redacted] account materialized, with 6-weeks worth of funding for infiltration modeling. This is allowing the work to limp along, but will not be adequate to provide PA with what it needs. Scheduling of FY99 work has already been seriously affected, and we are falling critically short of the original work plan I tried to put in place during the summer.

4. Following a recent TSPA workshop (12/14-16) which [redacted] and myself attended, critical issues regarding needed climate and infiltration modeling work to support SR & LA were discussed, with emphasis on the need to have modeling results in the TDB. The latest (FY98) version of the model addresses many (but not all) of the issues identified as critical during the workshop, and which largely reflect technical reviews of the TSPA-VA by NRC, NWTRB, and others. I again indicated that this was largely a resource problem (climate has the funding to do the work, infiltration modeling does not), and that from my perspective nothing had really been resolved following the October meeting. PA indicated to me during the workshop that: 1. the 110k provided to the [redacted] account was intended for the infiltration modeling work, 2. there is still a critical need to complete the work in FY99, 3. the work needs to be supported in FY99 (continued evaluation of model uncertainty), and 4. that the funds to do the needed work should be available in [redacted]

Thus, as of the 12/14-16 workshop, I have been going ahead with a modified version of the original FY99 work plan, although now it will be even more difficult to meet PA's FY99 modeling schedules (I'm basically following the [redacted] "close-out" package, which now reflects a tighter 9-month schedule). I have received no information on the status of the [redacted] account, so at this point in time I am planning to do the needed work under [redacted] and I will continue to do so until I receive further direction from you or [redacted]

[redacted]

12/24/98 07:25 AM

[redacted]

To: [redacted]
cc: [redacted]
Subject: Re: account [redacted]

[redacted] I have had no recent communications from anyone for the PA work. The hours I am carrying are still the ones which reflect 240 hours for you and 80 hours for [redacted] as well as some hours for other staff for the $110K. I believe that [redacted] thinks all of the money is for infiltration but there are other needs for PA other than the area that [redacted] is heading up. Is the $176K for infiltration that we set up in [redacted] totally different than what you are doing for PA? I will have to defer to [redacted] on how you should charge. It's true you should charge where you are working but I'm not sure I understand the separation between [redacted] and [redacted].

[redacted]
12/22/98 05:32 PM
Sent by: [redacted]
To: [redacted]
cc:
Subject: account [redacted]

Hello [redacted]

1st, Have a Merry Christmas and a Happy New Year,

2nd,
Recently I attended a TSPA meeting at [redacted] and was instructed to charge all site scale infilration modeling work which PA needs performed in FY99 to [redacted] On indicating that it was my impression that there was only 6 weeks worth of funding for me in that account ([redacted] folks still insist the 110k for [redacted] was intended for infiltration modeling), I was further instructed to keep charging to the account beyond the 6 weeks (bottom line is to just do the work that needs to be done). [redacted] and I are already heavily involved in this work in an effort to meet FY99 schedules. Please provide me with an update of the funding status for this account, and any information you may have recieved from the 1.2.5 folks recently.

Thanks,

[redacted]

[redacted]

ALG.[redacted]

Author: [redacted]
Organization:
From: [redacted]
PostedDate: 04/02/1998 05:37:52 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Charging to [redacted]
Body: ---------- Forwarded by [redacted] on 04/02/98 02:46 PM

[redacted]
04/02/98 02:34 PM
To:[redacted]
cc:
Subject: Charging to [redacted]
HAS [redacted] CHARGED ANYTIME TO[redacted] YET?
PLEASE LET ME KNOW
[redacted]

[redacted]

ALC.[redacted]

From: [redacted]
PostedDate: 10/30/1998 05:50:06 PM
SendTo: [redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: LADS support
Body:

I will commit to week after next.
Did you get the overnight package?

[redacted]
10/30/98 08:45 AM
To: [redacted]
cc: [redacted]
Subject: Re: LADS support

We are trying to get together to work out the details for this. It's a struggle to get the results and do the paperwork at the same time. We are stuck on the same problem with the code that we discussed in the telecon with [redacted] and [redacted], we just can't get it QA'd for a while, but we're trying. Oh, by the way, we don't have an account to do this work yet, or anything with the infiltration model. We're charging our time to [redacted] and PA. I'm trying to get [redacted] and [redacted] into a meeting but they have tight schedules and haven't been able to get it together. We plan on week after next to put this all together.

[redacted]

[redacted]

ALD [redacted]

From: CN=[redacted]
PostedDate: 10/30/1998 05:48:48 PM
SendTo: CN=[redacted]
CopyTo:
ReplyTo:
BlindCopyTo:
Subject: Re: LADS support
Body:
I will commit to week after next. Didn't quite know how to respond to [redacted] because I had assumed he was fully aware of the support we were providing to the engineers, and where this would put us in terms of QA

[redacted]
10/30/98 08:45 AM
To: [redacted]
cc: [redacted]
Subject: Re: LADS support
We are trying to get together to work out the details for this. It's a struggle to get the results and do the paperwork at the same time. We are stuck on the same problem with the code that we discussed in the telecon with [redacted] and [redacted], we just can't get it QA'd for a while, but we're trying. Oh, by the way, we don't have an account to do this work yet, or anything with the infiltration model. We're charging our time to [redacted] and PA. I'm trying to get [redacted] and [redacted] into a meeting but they have tight schedules and haven't been able to get it together. We plan on week after next to put this all together.

[redacted]

[redacted]
10/30/98 08:10 AM
Tc: [redacted]
cc:
Subject: LADS support
What's up?
---------- Forwarded by [redacted] on 10/30/98 08:10 AM ----------

[redacted]
10/29/98 04:24 PM
To: [redacted]
cc: [redacted], [redacted]
Subject: LADS support
Looks like your guys have been generating some interesting results. From Talking With [redacted] today, though, I am doubtful whether the results can be used at all in the LADS study. It seems to me that my stipulations on QA in the message below, are being ignored.
I need for [redacted] and whoever else is working on LADS calculations, to use [redacted] and generate a "checked" calculation in the form of a memo that will eventually go to controlled distribution. Also, I need to somehow capture the software that was used (perhaps by attaching a printout of the code), and the input/output need to be submitted to the TDMS.
---------- Forwarded by [redacted] on 10/29/98 04:17 PM ----------

[redacted]

Note for official file

[redacted]

SW Reg Surrender

[redacted]

Released w/ [redacted] 3-14-05

[redacted]

[redacted]

G1

[redacted]

Memorandum For: [redacted]
Radioactive Waste Management

From: [redacted]
Radioactive Waste Management for Repository Development

Subject: Status Report on Potential Falsification of Data

On Friday, March 11, 2005, I sent you a memorandum from [redacted] regulatory counsel describing potential program vulnerabilities resulting from what appear to be deliberate failures to follow quality assurance procedures and possible falsification of data committed by a USGS employee. This information is contained in a series of e-mails to and from this USGS employee during the period May 18, 1998 to March 20, 2000, and involves the work the USGS employee did for the project on infiltration of water into the repository. The [redacted] regulatory counsel's memo reported that these e-mails are available on the LSN.

We immediately undertook an investigation into this matter. What we have at this point is:

- the subject e-mails are not on the LSN or any other currently publicly available database.
- the e-mails are located on the CACI server to be included in the LSN scheduled to be certified this summer.
- the e-mails were found by [redacted] employees during routine review of e-mails for relevancy for the LSN.
- enclosed is a June 2002 report on risk information regarding mean annual dose using both USGS and non-USGS data. The results concluded that even when precipitation is used as maximum infiltration, dose results are not significantly affected for site recommendation.
- I will have more definitive information on the impacts associated with LA by COB Tuesday.

Key points for your discussion with the Secretary:

- the e-mails are not on the LSN or any other currently publicly available database.
- the implication of the information contained in the e-mails does not impact the site recommendation and we do not believe that the questionable data has any meaningful effect on the results supporting the site recommendation.
- we are investigating both the technical impacts on the safety analysis associated with the LA as well as data origin, validation, including QA and LA process checks.
- we will know more by COB Tuesday regarding schedule impacts.

- senior level management within the USGS as well as the Southwest Region of the investigations office of the Department's IG is being requested to investigate this matter.

Path Forward:

1) determine results of RW-1 meeting with the Secretary—Monday
2) follow-up with IG regarding investigation—Monday
3) notification to NRC—Monday
4) preliminary report on potential LA impacts—Tuesday COB
5) determination of other internal/external communication—Wednesday AM

[redacted]

QA:N/A

[redacted]

June 2002

RISK INFORMATION TO SUPPORT PRIORITIZATION OF PERFORMANCE ASSESSMENT MODELS

Prepared for:

U.S. Department of Energy
Yucca Mountain Site Characterization Office
P.O. Box 364629
North Las Vegas, Nevada 89036-8629

[redacted]

For the purpose of these studies, the potential significance of a TSPA model component is assessed in terms of whether changes in the component result in a change in the estimate of mean annual dose in the first 10,000 years of 0.1 mrem or more. The individual protection limit is 15 mrem and a change smaller than 0.1 mrem is insignificant in comparison with this limit. In fact, changes smaller than 1 mrem are not, in themselves, very important in comparison with the limit; however, a threshold of 0.1 mrem is considered here to address the possibility that a change in one TSPA model component of this magnitude in combination with changes in other components could be important. Explicit consideration of combined effects of changes in several components at once is provided in Section 3.4.

3.3.1 Climate and Net Infiltration Sensitivity Study

The first study examines the role of the climate and net infiltration component of the TSPA model. It is important to include this component in the TSPA model because it helps determine the amount of water that could contact waste, mobilize radionuclides, and carry those radionuclides away from the repository to the water table.

Figure 6 examines the sensitivity of the estimate of mean annual dose to the climate and net infiltration model component. This figure compares the results of the base-case model with a model that is unrealistic but which provides extreme values to allow exploration of the role of the model. The extreme model provides an unsaturated zone flow field that is consistent with an infiltration flux of the same order of magnitude as the precipitation flux. Precipitation onto Yucca Mountain averages about 190 mm/year under current conditions and is expected to average more than 300 mm/year over the next 10,000 years ([redacted], Table 3.3.1-1, p. 3T-1). The corresponding percolation flux in the base-case infiltration model averages about 4.6 mm/year under present day conditions and about 12 mm/year over the next 10,000 years ([redacted], Table 3.3.2-1, p. 3T-5). The extreme model assumes a flow field associated with the highest infiltration rate for the glacial maximum climate. The infiltration flux in this case averages about 150 mm/year ([redacted], Table 3.3.2-3, p 3T-7), approximately an order of magnitude greater than the infiltration flux for the base-case model and of the same order of magnitude as the present-day precipitation on Yucca Mountain. This extreme infiltration is considered to ensure that the role of the infiltration model is adequately evaluated.[3]

The results for the nominal scenario in Figure 6 show little change to the estimate of mean annual dose. The drip shields remain intact for more than 60,000 years; therefore, the increase in infiltration does not translate into an increase in the amount of water contacting waste in the first 10,000 years. The effect of increased infiltration in this case is increased wetting of the drift invert and associated changes to its transport properties and in the flow below the repository that can transport radionuclides to the water table. The results for igneous activity groundwater release scenario show somewhat greater increase because drip shields are disrupted, permitting advective flow to contact the waste. The estimate of mean annual dose is dominated by the solubility-limited plutonium-239 (see Figure 5b) so that this increase does result in an increase in

[3] Infiltration models intermediate between the base-case model and the extreme model considered here are expected to provide results between those shown here. That is, the increased flux of the analysis conducted here is so high that it addresses considerations of flow focusing or episodicity effects on the flow system. The effect on seepage of intermediate values for these factors is considered in Section 3.3.2.

the mean annual dose estimate. However, even in this case the increase is less than 0.01 mrem and is not considered to be significant.

These results indicate that the details of the climate and net infiltration models do not play a significant role in the estimate of mean annual dose. This result is consistent with the results using the TSPA-SR model. Analyses of the nominal scenario using that model also show no significant impact of magnitude of the net infiltration or the details of the unsaturated zone flow field on the estimate of mean annual dose ([redacted] Section 5.2.1.1, P. 5-9; [redacted] Section 3.2.1, p. 3-3).

3.3.2 Seepage Sensitivity Study

The seepage component of the TSPA model represents the flow of water into the emplacement drift that is a primary determinant of the moisture conditions within the emplacement drift. The seepage flux determines the advective flow contacting the drip shield and the flow through breaches in the drip shield in the TSPA model. This model component is therefore a factor in determining the amount of water contacting the waste packages, the amount of water entering breached waste packages, and the moisture conditions in the drift invert.

Seepage is not the only source of water affecting these elements. The moisture in the drift invert is evaluated in thermal-hydrologic analyses that take into account temperature and moisture content of the air, as well as the seepage. In addition, the TSPA model assumes a volume of water present within the waste package even when no seepage occurs to account for equilibrium between the moisture in the rock, in the air, and in the waste. These factors affect the sensitivity of the estimate of mean annual dose to the TSPA model component for seepage.

Figure 7 compares the base-case results with the results for different seepage models. In the base-case model, the seepage associated with a specified percolation flux varies over a range appropriate to that flux. In addition, the base-case model accounts for focusing of the flow due to heterogeneity in the rock and episodicity in the flow system. The first alternative model uses the 95th percentile of the base-case seepage distribution for the calculated percolation flux, the 95th percentile of the base-case flow-focusing factor, and the 95th percentile of the base-case episodicity factor. The comparison between the base-case model and this alternative model are shown (only for the igneous activity groundwater release scenario) in Figure 7. The results do not show a significant difference between these models. As in the case of the study of the effects of increased infiltration, the changes for the nominal scenario are negligible because the drip shield diverts water away from the waste and the only effect of the seepage is to change the moisture conditions in the drift invert. The changes are somewhat larger for the igneous activity groundwater release scenario because drip shields and waste packages are breached and the waste is directly exposed to the water. The increase in seepage results in an increase in the release of the solubility-limited radionuclides. However, even in this case, the increase is not significant.

One possibility for the small impact of the change in the model is that the variation considered is not sufficient to explore the full range of possibilities. There could be intermediate values for flow focusing or episodicity that could result in larger effects. This possibility is addressed by considering a more extreme case. The base-case model provides zero seepage over

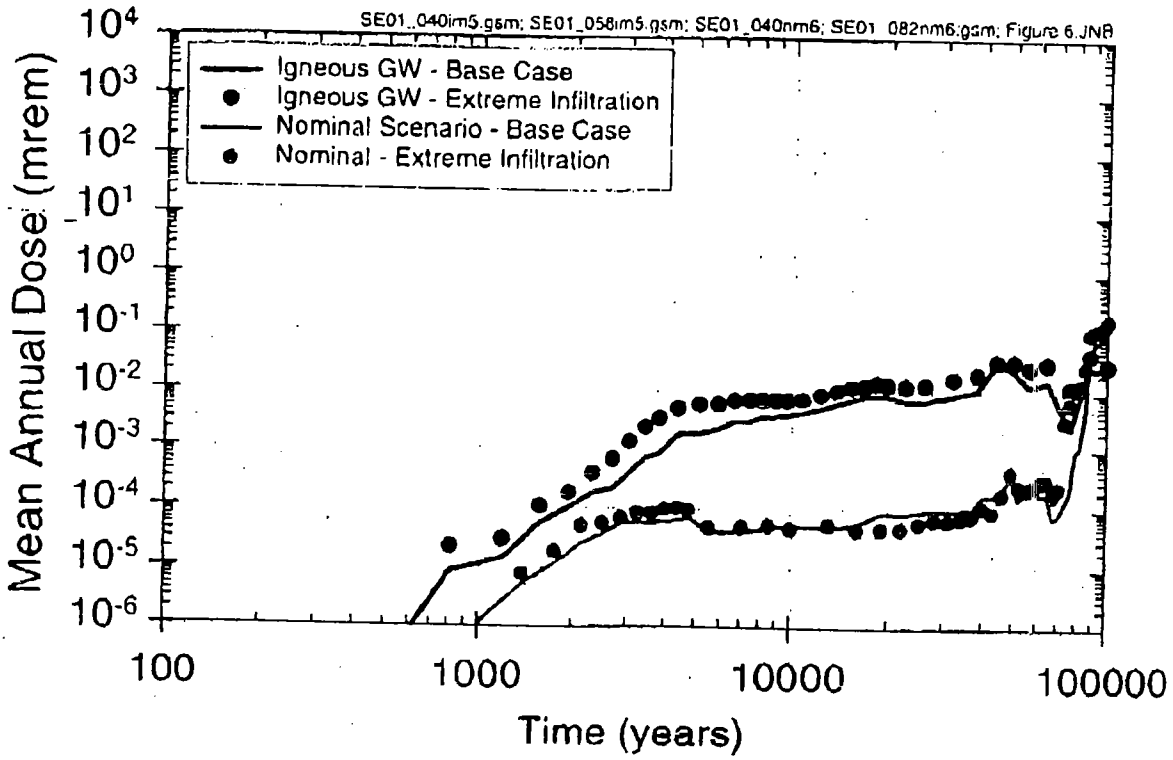


Figure 6. Sensitivity of Mean Annual Dose to the Climate and Net Infiltration TSPA Model Component

Note: Each mean annual dose curve is a probability-weighted average. However, the results of the sensitivity studies do not correspond to expected risk (see introduction to Section 3).

The results in solid line use the USGS data. The results in dots do not use the USGS data, but instead uses a conservative, worst case estimate of precipitation as the net infiltration. The fact that the dots almost plot on the lines shows that the dose is insensitive to infiltration, the data in question.

Employee Concerns Regarding emails on the LSN

The concerns that have been identified in the enclosed series of emails are being summarized and referred to the appropriate offices for investigation and resolution. These emails were found by [redacted] in reviewing LSN materials and shared with DOE.

The information and how to address it was discussed by [redacted]

1. Those matters that relate to employee falsification of time or other professional responsibility matters are being refered to USGS.

2. Those matters relating to material misrepresentations or falsification of information presented to DOE are being referred to the DOE IG. The DOE IG will be copied on the summary of all the issues.

3. The technical implications of these emails are being investigated by [redacted] and [redacted], including identifying and addressing any potential effects on our technical work beyond the AMR identified in the emails.

Further information on the attached will be fowarded next week.

[redacted]

(@ 9:30 am

This recommends a course of action for dealing with potential program vulnerabilities created by a series of relevant, not privileged e-mails from and to a USGS employee who worked on climate aspects of the project.

[redacted]

Depending on the current status of the work to which he contributed, these e-mails may create a substantial vulnerability for the program. (We note that because AMR U0010 has been so substantially modified from its original version that [redacted] work may not longer be of concern, but we need to know that.)

[redacted]

Period covered: May 18, 1998 to March 20, 2000

Contacts (number): [redacted]

Technical issues: UZ Flow-infiltration report/future climate results (no DTNs)

Forty Mile Wash simulations

Work provided not QA but not revealed

Work package submitted to [redacted] for review
Program not in the system
Reply by [redacted] recommends subterfuge
(Timeframe April 22, 1999)

climate input files not QA

[redacted] and [redacted] Mesa precipitation files/[redacted]

[redacted] (Nov 2004)
Simulation of Net Infiltration for Present-Day and Potential Future Climates
Contributors include [redacted]
Entire document revised from earlier version

[redacted] and [redacted] software not QA

[redacted] blocking ridge numbers

Installation of unqualified codes

[redacted]

Non-technical

[redacted]

Issues

Jury duty

Work on projects not approved

Awareness of wrongful acts

[redacted]

[redacted]

Path Forward

Contact	Issue	Date	Statements
[redacted]	Future air temperature for climate and infiltration	05/11/98	Kept mum to keep from looking bad Hoped to let it pass without a [redacted] Forwarded first draft of UZ Flow section from [redacted] at Sandia It included climate and infiltration
[redacted]	Funding for work on regional scale	06/18/98	Intent to do a few extra simulations in Forty Mile Wash Like getting paid twice for same work Don't feel bad considering how little paid for the year
[redacted]	Summoned for jury duty	10/27/98	[redacted] suggests indirectly that [redacted] ignore summons by pretending it was never received- [redacted] appears to agree
[redacted]	Engineering perspective on desert paving	10/29/98	What till the figure out nothing I've provided them is QA If they want the real stuff they'll have to pay to do it right
[redacted]	QA and credibility	12/18/98	This will be like the OJ trial Results will be completely thrown out because of minor procedural flaws or personal attacks on credibility
[redacted]	Response to note from [redacted] to [redacted], cc [redacted] that [redacted] to be sucked into Tiger team effort	03/15/99	Will continue regional modeling and reports even if ignore direct orders from YMP management [redacted] and I know what needs to be done in long haul to stay alive Screwing around with tiger teams doesn't help That's the insider scoop. The position we take with the [redacted] planners may be very different. Delete this memo after you read it.
[redacted]	Career development Comment to [redacted] on [redacted] work directions	03/26/99	I've not devoted full time to [redacted] I'll be damned if I drop everything else and do nothing but [redacted] The skills I'm interested in developing will benefit the [redacted] district and our careers. This is another memo that needs to be destroyed.

[redacted]

Contact	Issue	Date	Statements
[redacted]	Getting around QA requirements	04/22/99	QA bullshit grows deeper The program I wrote is not in the system QA will be all over us like flies on *** I may need to say I did everything by hand for the data package All references to [redacted] deleted Am not referencing tech procedure or scientific notebook Would it be cost-effective to create a scientific notebook and back date it?
[redacted]	Response to [redacted] suggestion about previous message	04/22/99	Responds positively to suggestion that [redacted] should download raw files from [redacted] and say he used them No need to do an analysis, just say this is data used
[redacted] (Denver)	New climate net-infiltration model Continuing follow-up on previous notes	04/22/99	Small error found 3 weeks ago in model input generated using [redacted] data Error fixed and simulations being redone Sending developed data package used by net-infiltration model Inputs reformatted [redacted] export files with some parameter estimation to fill in small gaps To get this through QA, I must state that I arbitrarily selected analog sites Wanted to use your e-mail as support but QA said can't use those results So, for the record, the seven analog sites have been selected randomly I hope these sites will match yours by coincidence Please destroy this memo
[redacted]	Comment on QA	08/05/99	Piss on QA
[redacted]	Multiple books	11/15/99	Deleted last four lines from official QA version of files. Lines not used. I keep track of two sets of files, the ones that QA happy and the ones actually used.

[redacted]

Contact	Issue	Date	Statements
[redacted]	[redacted]	01/06/00	There is, of course, no scientific notebook for this work. All work is in the form of electronic files. I am more concerned about the [redacted] projects than about the [redacted]. I need help to figure out a good excuse why 100% of my time did not go into the audit without revealing the [redacted] projects
[redacted]	Calculations	02/17/00	Please do no tell anyone how this was done because the we will need to get this whole thing through software QA
[redacted]	[redacted]	03/06/00	I assume topographic ID produced by [redacted] by using [redacted]. Only a placeholder not actually used by model so doesn't matter. Not yet able to reproduce blocking ridge values. I have no direct trace to the actual calculation. I can fudge the attachment for [redacted] for now. If it is run, there may be problems but I believe that an impact analysis would show differences are not critical to end result.
[redacted]	[redacted] and [redacted]	03/09/00	To create [redacted] from [redacted], fan [redacted] with option set [redacted] causing veg cover estimate based on [redacted], the regional vegtypes. To create [redacted], used as input to [redacted], re-ran [redacted] using [redacted] as input so regional vegtypes made it into all watershed files. Cannot reproduce blocking ridge numbers using [redacted] Strange non-integer values

[redacted]

Contact	Issue	Date	Statements
[redacted] (Denver)	[redacted]	03/20/00	I don't have a clue when these programs were installed. So I've made up the dates and names. This is as good as its going to get. If they need more proof, I will be happy to make up more stuff, as long as its not a video recording of the software being installed.

[redacted]

3-14-05 - PM —

[redacted] & [redacted]

will report who knew what when within 48 hours.

What happened?

- Review of internal project documentation identified e-mails during 1998 to 2000 of a U.S. Geologic Survey (USGS) employee, and possibly others, working on the DOE Yucca Mountain project which describe falsification of documentation required to accompany computer models related to water infiltration for Yucca Mountain.

- An investigation of the actions of the individuals and their impacts was initiated when DOE was informed on March 11, 2005.

What does it mean?

- It potentially calls into question the accuracy of documentation of certain models.

- Work that has been adversely affected might have to be redone using the correct QA procedures.

- There is no indication that underlying data or analysis is invalid.

- The QA program and our continuing analysis to examine records is working.

What are we doing about it?

- Notifying appropriate authorities and key interested parties.

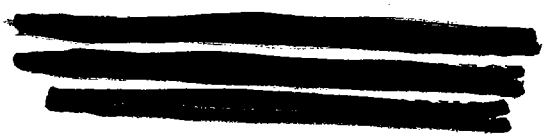
- Making all of the information available to the investigators and to the State of Nevada.

- Carefully assessing the quality and pedigree of the documentation.

- Initiating an audit to determine if the systematic QA improvements undertaken over the last four years are sufficient to prevent reccurrence of such situations.

- The actions of the individual involved and others who might have been associated with those actions will be thoroughly investigated and appropriate action will be taken as necessary.

- Additional training, as necessary, of project personnel in QA procedures and the importance of strict adherence to them will be undertaken.



FACTS
3-15-05

Evidence indicates that at least one U.S. Geologic Survey (USGS) employee's emails describe falsification of Quality Assurance (QA) records associated with water infiltration models for Yucca Mountain.

The USGS serves as a subcontractor to the Department's Office of Civilian Radioactive Waste Management (RW) with primary responsibility for many geotechnical studies at Yucca Mountain.

The records in question were over a period from 1998 to 2000 and the employee appears to have deliberately violated procedures to meet demands placed on him by the QA program. He was part of the USGS group assigned to Yucca Mountain from _____ to _____.

The evidence of his activities were discovered during a review of electronic records (email) being prepared for submission to the Licensing Support Network (LSN). The records are not publicly available but will be part of the LSN recertification expected to be made in June 2005.

The RW Office of Repository Development (RW-ORD) in Las Vegas was notified on Friday, March 11, 2005 by BSC and took immediate action to notify headquarters, the USGS, and DOE Inspector General (IG). RW headquarters advised the Secretary on Friday evening. RW has also notified the Nuclear Regulatory Commission (NRC) to advise them of a pending investigation into this situation.

Ongoing investigation will likely take several weeks. An evaluation is proceeding on the potential impact to the preparation of the License Application (LA) and will be better understood once the extent of the falsification is understood.

Actions Taken

1. Those matters that relate to employee falsification of time or other professional responsibility matters are being referred to USGS. The Director of USGS was notified on 3-11-05.

2. Those matters relating to material misrepresentations or falsification of information presented to DOE are being referred to the DOE IG.

3. The technical implications of these emails are being investigated by BSC and DOE, including identifying and addressing any potential effects on our technical work beyond the data identified in the emails.

Actions to be taken

Produce a common "one-pager" to capture facts and discussions.

White House to notify the Secretary's Office of the U.S. Department of the Interior.

DOE/HQ will notify of the State of Nevada and Congressional delegation and committees. Possible notification of Technical Review Board

Conduct a comprehensive audit of quality assurance program implementation to assess occurrence of similar situations.

[redacted]

DOE NEWS
U.S. DEPARTMENT OF ENERGY • OFFICE OF PUBLIC AFFAIRS • WASHINGTON, DC 20585

NEWS MEDIA CONTACT: [redacted]

FOR IMMEDIATE RELEASE
Wednesday, March 16, 2005

STATEMENT FROM SECRETARY OF ENERGY, SAMUEL BODMAN

WASHINGTON, DC -- The Department of Energy has learned that certain employees of the US Geological Survey (USGS) at the Department of the Interior working on the Yucca Mountain project may have falsified documentation of their work. This documentation is required as part of the Department of Energy and Nuclear Regulatory Commission's quality assurance programs that verify the accuracy and credibility of work that has been completed. This documentation in question relates to computer modeling involving water infiltration and climate.

"During the document review process associated with the Licensing Support Network preparation for the Yucca Mountain project, DOE contractors discovered multiple emails written between May 1998 and March 2000, in which a USGS employee indicated that he had fabricated documentation of his work.

"The Department of Energy has initiated a scientific investigation of the data and documentation that was part of this modeling activity. If in the course of that review any work is found to be deficient, it will be replaced or supplemented with analysis and documentation that meets appropriate quality assurance standards to ensure that the scientific basis of the project is sound. We are conducting a thorough review of all work completed by the identified individuals to ensure that other work was not affected.

"Additionally, we have informed the US Geological Survey and the State of Nevada. We have initiated an evaluation to determine if the systematic quality assurance improvements undertaken over the last four years are sufficient to prevent the reoccurrence of a similar situation. And we plan to reemphasize to project personnel the importance of strict adherence to quality assurance procedures.

"I am greatly disturbed by the possibility that any of the work related to the Yucca Mountain Project may have been falsified. This behavior indicated in the emails is completely unacceptable, and I have referred this matter to the Department of Energy's Office of Inspector General for full investigation.

R-05-054 **-MORE-**

Department of the Interior

NEWS

U.S. Department of the Interior

Office of the Secretary
For Immediate Release: March 16, 2005

Statement by US Geological Survey Director Chip Groat

WASHINGTON, D.C.-The Department of Energy has notified the Department of the Interior that e-mails by United States Geological Survey employees have raised serious questions about the review process of scientific studies done six years ago on the proposed Yucca Mountain Nuclear Waste Repository located in Nevada.

The employees studying water infiltration at the Repository, during the 1998-2000 period, are alleged to have committed improprieties after moving into the quality assurance phase imposed by the Department of Energy to begin the Nuclear Regulatory Commission's licensing process. The e-mails indicated that employees involved in studies of water infiltration and climate may have falsified documentation of their work.

USGS Director Chip Groat has issued the following statement:

"Serious questions have been raised about quality assurance practices performed in 1998-2000 by USGS scientists on the Yucca Mountain Nuclear Waste Repository project for the Department of Energy. Two actions are underway to investigate these issues. First, I have referred the matter to the Inspector General for action. Second, I have initiated an internal review of the allegations. Once the facts are known, appropriate actions will be taken. USGS remains committed to maintaining scientific excellence."

-DOI-

Selected News Releases

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Investigation of Technical Impacts and Planned Corrective Actions Associated with Alleged Falsification of Records Associated with the Yucca Mountain Project

Background

Emails exchanged among technical staff working for the U.S. Geological Survey (USGS) are the subject of this investigation. The first knowledge of the issues contained in the e-mails occurred during the first week of December, 2004. One of the managers reviewing emails brought the emails in question to the [redacted] Company, [redacted] attorney working on the Licensing Support System (LSN) effort. There were meetings during that week, including the [redacted] Lead Counsel, the [redacted] Business Systems Manager responsible for the email review process, and a conference call involving both the Office of General Counsel and a [redacted]s attorney. The issues were discussed at a high level during each of those meetings. No specific action plan resulted from the meetings. Follow-up occurred March 9, 2005, when action was prompted by a conversation about other email issues. At that time, these issues were brought to the Employee Concerns Program (ECP).

Approach and Scope of Investigation to Assess Technical Impacts

The Analysis and Model Reports (AMRs) directly impacted by potential data, model and/or software issues raised in the emails will be reviewed by both technical and quality assurance experts. In addition, all other product outputs used to support the Site Recommendation and License Application that were generated by the USGS may be reviewed.

Areas to be Evaluated

1) *Individuals Involved in the Emails*: The technical staff named in the emails worked on the Project in the mid to late 1990s. They were involved in planning and fielding an extensive shallow drilling program (over 75 boreholes) that produced the data used to estimate how much of the precipitation that falls at Yucca Mountain has a potential to infiltrate and potentially reach repository depths.

2) *Reports/Data Sets Created by the Individuals*: Two current AMRs supporting the License Application are most directly impacted by potential issues raised in the emails. The total number of reports and/or data sets created by the individuals named in the email is large (>150) although many of the data sets are not directly used in current AMRs. Three earlier reports authored by the individuals are referenced in the Science and Engineering Report, the Technical Information Supporting the Site Recommendation Consideration.

3) *Quality and Technical Reviews*: Current quality procedures for scientific analyses and modeling have been in place since June 1999. Prior to that time, the quality assurance program covering scientific investigations was not fully integrated under a single set of Project-wide procedures. There were requirements for Scientific Notebooks and

[redacted]

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transmittal of Data Packages to the Technical Data Management System prior to 1999 and the individual organizations had their own implementing procedures for preparation of technical documents in many cases.

4) *Results of Reviews*: For the items identified to date in the emails, about 30% were previously identified during the Regulatory Integration Review or as part of corrective actions related to legacy software. The remainder were items that would be unlikely to be found in the typical technical and quality assurance reviews. One of the most important items relates to a missing input file that is needed to reproduce results of a current Model Report that supports the License Application. This item had been identified in a Condition Report filed in February 2005 prior to review of the emails. Potential problems not previously found were identified in the emails, which may relate to compliance with software quality assurance procedures.

5) Resulting Impacts to Site Recommendation or License Application: Preliminary evaluations suggest that the issues identified in the emails are not likely to discredit or bring into question the validity of conclusions related to precipitation and infiltration collected during site characterization. The issues appear to be related to incomplete records for manipulation and processing of the data during model development and analysis, which may reflect violation of quality assurance procedures. Because the uncertainty bounds that are used for infiltration estimates in the Total System Performance Assessment are large, it is unlikely that issues related to the emails would impact the dose results of the current TSPA or previous TSPA that supported the Site Recommendation.

Results

The emails appear to reflect a lack of management and staff respect for and adherence to quality assurance procedures. The potential for significant technical impacts is believed to be low. However, the credibility and defensibility of the USGS technical work supporting the project is brought into question. The recommended preliminary corrective actions that follow are planned to address both aspects of the issues.

Summary of Recommended Investigations

- Technical and Process Review
  a. Two Analysis and Model Reports (AMRs) supporting the License Application are directly impacted by potential data, models, and software issues raised in the emails ([redacted]: Simulation of Net Infiltration for Present-Day and Potential Future Climates; and [redacted] Analysis of Infiltration Uncertainty). All input files (46), output files (12), software documentation, and model validation basis will be reviewed to identify any impacts related to the issues raised in the emails. This review will also cover the records of technical and compliance checking and review of these AMRs and results of quality assurance audits and surveillances.

[redacted]

b. Other technical product output produced by the USGS that is used as direct input to AMRs supporting the License Application (~15) may be reviewed. Input files, software usage and model validation documentation may be evaluated with regard to impacts related to the issues raised in the emails.
c. By reviewing the inputs, software utilized, and outputs as described in (a) and (b), the potential for impacts on the technical basis used for the Site Recommendation and the License Application will be established.

The reviews described in a-c will take on the order of 4-8 weeks depending on the findings.

Path Forward

- Depending on outcome of technical/process reviews, further corrective actions may need to be defined.
- If missing computer input file is located and Model Results can be reproduced, then additional new model development/analysis may not be required. However, if computer file is not found, then actions may include
  - Technical evaluation to qualify Model Report outputs
  - Develop and validate alternative model

Crucial Calibrations E-Mail Issue
Talking Points

Summary:

[redacted]'s e-mail is the result of a preliminary work product review conducted in 2000. Comments in the e-mail are typical of those found at early stages of review for a Data Tracking Number (DTN) records roadmap development.

A complete, formal review of the DTN records roadmap in question was completed subsequent to [redacted]'s review, per procedure. The current record roadmap for this DTN demonstrates that issues and comments raised by [redacted] and subsequent reviewers have been addressed. The data was fully confirmed and verified under our existing data confirmation processes in January of 2004.

[redacted]'s e-mail is proof that the Yucca Mountain Project review process works. A rigorous review process that subjects data to scrutiny ensures the validity of Project scientific data and its supporting documentation. [redacted] scrutinized the DTN and identified issues for review and resolution.

Supporting documentation for the DTN in question includes a 22-page roadmap that traces records needed to ensure the validity of data; and 25 pages containing comments and resolutions, e-mails, and a preliminary roadmap that was reviewed and checked.

More than 570 DTN roadmaps exist for the Yucca Mountain Project, all with comments from informal and formal reviews such as those noted by [redacted] – and with similar volumes of supporting documentation.

There are likely thousands of e-mails with similar content in the LSN, as Project employees responsible for reviewing data and documents noted questions and other issues in e-mails as part of their day-to-day responsibilities. Each of these e-mails is proof of the rigor and scrutiny applied to Yucca Mountain Project data.

The rigor of review and the volume of documentation provides confidence in the scientific data gathered at the Yucca Mountain Project.

Background on the e-mail:

When he wrote the e-mail in May 2000, [redacted] was an [redacted] employee, working on the Yucca Mountain Project as a data verification engineer.

In 2000, the process DTN record roadmap reviews was as follows (in summary):

- The national laboratories conduct testing and gather data.
- The national laboratories prepared the DTN records roadmap that details the data gathered, along with documentation of all aspects of the data gathering – including traceability of data collection, existence of calibration services (and procurement records, if applicable), and

documentation that software was handled correctly. The DTN is then sent to the [redacted] contractor for "consistency review."

- An [redacted] data verification engineer conducts a consistency review – an informal, early work product review to make sure DTN is in proper format, and that documentation is complete. [Note: the procedure calls for the informal consistency review as part of the review process.]
- A set of informal comments, generally via e-mail or a marked-up copy of the DTN package, is returned to the national laboratory.
- The national laboratory examines the comments, makes corrections on comments deemed valid, and prepares a record package for formal review.
- The [redacted] performs a formal review, per procedure, that ensures the roadmap lists documentation needed to ensure the validity of data are in place and fully traceable.

[redacted] e-mail is the product of a consistency review of a DTN records roadmap created by [redacted]

Status of issues identified in [redacted]'s e-mail:

- All issues have been reviewed and determined to be valid or invalid.
- Approximately 2/3 of the issues were deemed invalid (i.e. no corrective actions were necessary).
- In every instance that [redacted] cites missing calibration records, the calibration records were located and are listed on the final records roadmap that is a result of multiple reviews conducted on this DTN, and typical of the reviews conducted on DTN's in the Yucca Mountain baseline supporting the license application.

Background on [redacted].

[redacted] was an employee of [redacted] for five months in 2000 ([redacted] was a teaming partner with the [redacted] contractor, [redacted]). He worked as a data verification engineer, using his NRC background and strong knowledge of NRC auditing procedures. As part of the data verification group, he was responsible for conducting reviews of DTN records roadmaps received from the national laboratories. In his reviews, [redacted] was responsible for identifying inconsistencies, and his results were returned to the Labs for resolution. [redacted] left [redacted] and the Project in August 2000. He returned to the Project in July 2003 as a senior licensing engineer with [redacted] Research Associates, a teaming partner with current [redacted] contractor [redacted]

BULLETS

- Process issues associated with timing of documents being prepared and signed/dated
  - Self-identified by proactive processes
  - U.S. Geological Survey (USGS) employees no longer working on the program
  - Process violations were apparently willful by two individuals → therefore, work outputs are in question
- Technical subject of suspect work is in publicly available project reports
- Technical investigation ongoing – preliminary results show that the suitability of the Yucca Mountain site is not in question
  - Risk sensitivity studies (done in post) indicate repository performance is not very sensitive to this parameter
  - Infiltration information used in repository performance assessments is reasonable based on known infiltration
- Independent investigations by Inspector(s) General of the USGS and U.S. Department of Energy
- Huge improvements in safety culture and QA program implementation in last five years
- Great efforts have been made to encourage project staff to raise issues and mechanisms to anonymously do so, if desired
- Past QA re-verification of software quality, scientific model validation, and data qualification
- The evaluation will be exhaustive, we will do whatever is necessary to ensure quality and safety of the repository
- When will investigation be complete? We will complete as expeditiously as is reasonably possible – but our first priority is ensuring safety and quality, not speed
- How can we have confidence that other scientific work is sound?
  - Scientists working on YMP are among the best and brightest in the world from Berkeley, Livermore, Los Alamos, three other National Laboratories and the USGS → credentials as a whole are unsurpassed
  - Nevertheless, we will determine the full extent of any adverse conditions and take corrective action to ensure safety and environmental protection

BULLETS

- Process issues associated with timing of documents being prepared and signed/dated
  - Self-identified by proactive processes
  - U.S. Geological Survey (USGS) employees no longer working on the program
  - Process violations were apparently willful by two individuals → therefore, work outputs are in question
- Technical subject of suspect work is in publicly available project reports
- Technical investigation ongoing – preliminary results show that the suitability of the Yucca Mountain site is not in question
  - Risk sensitivity studies (done in post) indicate repository performance is not very sensitive to this parameter
  - Infiltration information used in repository performance assessments is reasonable based on known infiltration
- Independent investigations by Inspector(s) General of the USGS and U.S. Department of Energy
- Huge improvements in safety culture and QA program implementation in last five years
- Great efforts have been made to encourage project staff to raise issues and mechanisms to anonymously do so, if desired
- Past QA re-verification of software quality, scientific model validation, and data qualification
- The evaluation will be exhaustive, we will do whatever is necessary to ensure quality and safety of the repository
- When will investigation be complete? We will complete as expeditiously as is reasonably possible – but our first priority is ensuring safety and quality, not speed
- How can we have confidence that other scientific work is sound?
  - Scientists working on YMP are among the best and brightest in the world from Berkeley, Livermore, Los Alamos, three other National Laboratories and the USGS → credentials as a whole are unsurpassed
  - Nevertheless, we will determine the full extent of any adverse conditions and take corrective action to ensure safety and environmental protection

BACKGROUND ON THE SUSPECT DATASET

The data in questions are infiltration data, which is the net amount of water that actually gets into Yucca Mountain, after most of the precipitation is lost to evaporation in the desert heat or is used by plants.

BOTTOM LINE

A TSPA sensitivity study replaced the suspect data and used the much larger precipitation values instead. The result of that study showed that repository performance was not significantly affected.

Draft to be revised as result of discussion

Investigation of Technical Impacts and Planned Corrective Actions Associated with Alleged Falsification of Records Associated with the Yucca Mountain Project

Background

Emails exchanged among technical staff working for the U.S. Geological Survey (USGS) are the subject of this investigation. The first knowledge of the issues contained in the e-mails occurred during the first week of December, 2004. One of the managers reviewing emails brought the emails in question to the [redacted] attorney working on the Licensing Support System (LSN) effort. There were meetings during that week, including the [redacted] Counsel, the [redacted] responsible for the email review process, and a conference call involving both the Office of General Counsel and a [redacted] attorney. The issues were discussed at a high level during each of those meetings. No specific action plan resulted from the meetings. Follow-up occurred March 9, 2005, when action was prompted by a conversation about other email issues. At that time, these issues were brought to the Employee Concerns Program (ECP).

What do you mean how discussed?

Approach and Scope of Investigation to Assess Technical Impacts

The Analysis and Model Reports (AMRs) directly impacted by potential data, model and/or software issues raised in the emails will be reviewed by both technical and quality assurance experts. In addition, all other product outputs used to support the Site Recommendation and License Application that were generated by the USGS may be reviewed if the extent of condition requires it.

what level?

will be fixed. Not correct!

Areas to be Evaluated

1) *Individuals Involved in the Emails*: The technical staff named in the emails worked on the Project in the mid to late 1990s. They were involved in planning and fielding an extensive shallow drilling program (over 75 boreholes) that produced the data used to estimate how much of the precipitation that falls at Yucca Mountain has a potential to infiltrate and potentially reach repository depths.

2) *Reports/Data Sets Created by the Individuals*: Two current AMRs supporting the License Application are most directly impacted by potential issues raised in the emails. The total number of reports and/or data sets created by the individuals named in the email is large (>150) although many of the data sets are not directly used in current AMRs. Three earlier reports authored by the individuals are referenced in the Science and Engineering Report, the Technical Information Supporting the Site Recommendation Consideration.

3) *Quality and Technical Reviews*: Current quality procedures for scientific analyses and modeling have been in place since June 1999. Prior to that time, the quality assurance program covering scientific investigations was not fully integrated under a single set of Project-wide procedures. There were requirements for Scientific Notebooks and

transmittal of Data Packages to the Technical Data Management System prior to 1999 and the individual organizations had their own implementing procedures for preparation of technical documents in many cases.

4) *Results of Reviews*: For the items identified to date in the emails, about 30% were previously identified during the Regulatory Integration Review or as part of corrective actions related to legacy software. The remainder were items that would be unlikely to be found in the typical technical and quality assurance reviews. One of the most important items relates to a missing input file that is needed to reproduce results of a current Model Report that supports the License Application. This item had been identified in a Condition Report filed in February 2005 prior to review of the emails. Potential problems not previously found were identified in the emails, which may relate to compliance with software quality assurance procedures.

[redacted] has been opened to look for files

5) Resulting Impacts to Site Recommendation or License Application: Preliminary evaluations suggest that the issues identified in the emails are not likely to discredit or bring into question the validity of conclusions related to precipitation and infiltration collected during site characterization. The issues appear to be related to incomplete records for manipulation and processing of the data during model development and analysis, which may reflect violation of quality assurance procedures. Because the uncertainty bounds that are used for infiltration estimates in the Total System Performance Assessment are large, it is unlikely that issues related to the emails would impact the dose results of the current TSPA or previous TSPA that supported the Site Recommendation.

Results

The emails appear to reflect a lack of management and staff respect for and adherence to quality assurance procedures. The potential for significant technical impacts is believed to be low. However, the credibility and defensibility of the USGS technical work supporting the project is brought into question. The recommended preliminary corrective actions that follow are planned to address both aspects of the issues.

Summary of Recommended Investigations

- Technical and Process Review
  a. Two Analysis and Model Reports (AMRs) supporting the License Application are directly impacted by potential data, models, and software issues raised in the emails ([redacted]: Simulation of Net Infiltration for Present-Day and Potential Future Climates; and, [redacted], Analysis of Infiltration Uncertainty). All input files (46), output files (12), software documentation, and model validation basis will be reviewed to identify any impacts related to the issues raised in the emails. This review will also cover the records of technical and compliance checking and review of these AMRs and results of quality assurance audits and surveillances.

[redacted]

b. Other technical product output produced by the USGS that is used as direct input to AMRs supporting the License Application (~15) may be reviewed. Input files, software usage and model validation documentation may be evaluated with regard to impacts related to the issues raised in the emails.
c. By reviewing the inputs, software utilized, and outputs as described in (a) and (b), the potential for impacts on the technical basis used for the Site Recommendation and the License Application will be established.

The reviews described in a-c will take on the order of 4-8 weeks depending on the findings.

Path Forward

- Depending on outcome of technical/process reviews, further corrective actions may need to be defined.
- If missing computer input file is located and Model Results can be reproduced, then additional new model development/analysis may not be required. However, if computer file is not found, then actions may include
  - Technical evaluation to qualify Model Report outputs
  - Develop and validate alternative model

March 16, 2004 11:00am

What happened?

- Review of internal project documentation during Licensing Support Network preparation identified e-mails between 1998 and 2000 of certain U.S. Geologic Survey (USGS) employees, working on the DOE Yucca Mountain project which describe falsification of documentation required to accompany computer models related to water infiltration and climate for Yucca Mountain.

- A scientific investigation of the effects of the actions of the individuals on the repository safety analysis was initiated when DOE management was informed on March 11, 2005.

- The matter has also been referred to the DOE's Office of the Inspector General.

What does it mean?

- The problem appears to be related to documentation rather than the underlying science, but DOE is committed to investigating thoroughly.

- DOE's review process and continuing commitment to quality is working.

What are we doing about it?

- Carefully assessing the quality and pedigree of affected documentation.

- Evaluating work that is the subject of the apparent falsified records, and if found to be deficient, replacing or supplementing, as necessary.

- Evaluating other work supporting the repository program by the implicated individuals and taking appropriate actions, as necessary, to ensure a sound scientific basis for the repository safety analysis.

- Notifying appropriate authorities and key interested parties.

- Providing additional emphasis to project personnel in QA procedures and the importance of strict adherence to them.